

BOARDWATCH

MAGAZINE

Guide to Internet Access and the World Wide Web

Surprising Real World 56K Modem Test Results and a New V.90 Modem Standard

**FCC
Computer III
Inquiry —
Huge Break
for Internet
Access**

**Local ISPs
Take on US West
in a Battle For
LAD Circuits**

ISP POP DIAL TEST PROGRAM

ISP POP DIALER

Manual Dial Current time 3:45:00 PM
Autodialing until 10:00:00 PM
Call 752...

Port ATDT1619-849-1311
Modem CONNECT 45333ARQX2LAPM/V42BIS
Terminal NO CARRIER
Scheduler

146 IBM 619-849-1311
San Diego pacific x2

First Dialed 12/30/97 6:41:02 PM Attempts 436
Last Dialed 2/3/98 1:27:22 PM Connects 429
% Completion 98.39 Busies 1
Avg Con Speed 46763.20 NoAnswer 6
Current Speed 45333 US RDBOTICS

ATDT1619-849-1311 Only Γ
CONNECT 45333ARQX2LAPM/V42BIS X2 Γ
K56flex Γ

ISP POP DIAL TEST PROGRAM

ISP POP DIALER

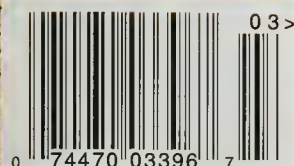
Manual Dial Current time 3:45:00 PM
Autodialing until 10:00:00 PM
Call 746...

Port 7465
Modem OK
Terminal ATDT1202 478 0801
CONNECT 32000
Scheduler OK

102 Epoch 202-478-0604
Washington, DC eastern K56flex

First Dialed 12/30/97 3:57:30 PM Attempts 250
Last Dialed 2/3/98 1:31:47 PM Connects 225
% Completion 90 Busies 0
Avg Con Speed 32881.77 NoAnswer 25
Current Speed 32000 ZOOM

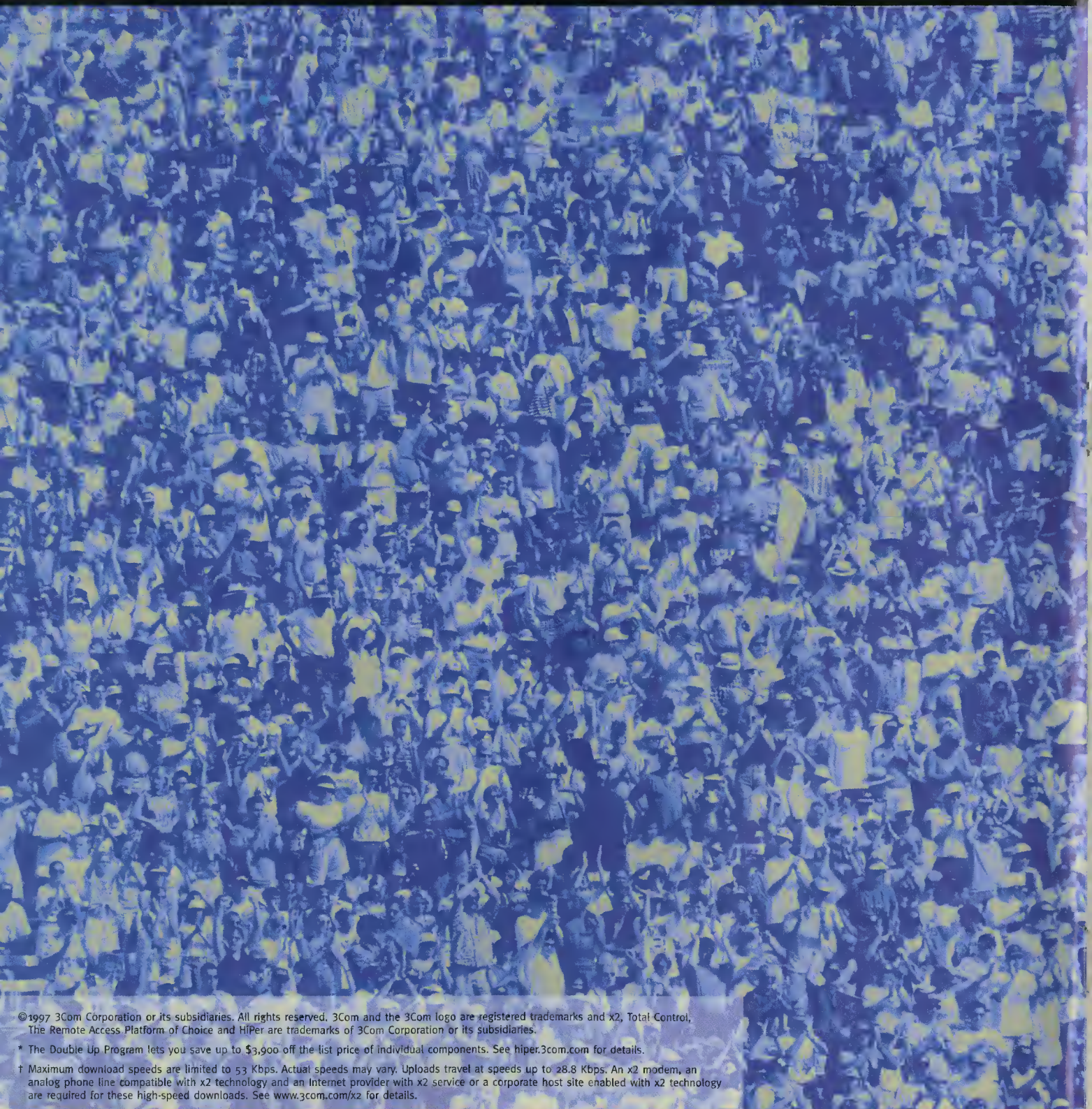
ATDT1202-478-0604 Only Γ
CONNECT 32000 X2 Γ
K56flex Γ



0 74470 03396 7
\$5.95 U.S. & CANADA

WITH THE TOTAL CONTROL REMOTE ACCESS PLATFORM, YOU CAN NOW GET

MORE SUBSCRIBERS

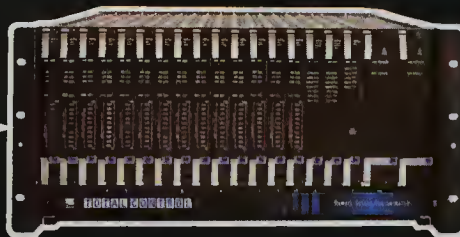


©1997 3Com Corporation or its subsidiaries. All rights reserved. 3Com and the 3Com logo are registered trademarks and x2, Total Control, The Remote Access Platform of Choice and HiPer are trademarks of 3Com Corporation or its subsidiaries.

* The Double Up Program lets you save up to \$3,900 off the list price of individual components. See hiper.3com.com for details.

† Maximum download speeds are limited to 53 Kbps. Actual speeds may vary. Uploads travel at speeds up to 28.8 Kbps. An x2 modem, an analog phone line compatible with x2 technology and an Internet provider with x2 service or a corporate host site enabled with x2 technology are required for these high-speed downloads. See www.3com.com/x2 for details.

IN LESS SPACE



The Total Control™ Remote Access Concentrator gives you the power to support more subscribers in your existing facility space. How? With revolutionary HiPer™ DSP technology. Now you can support up to 336 analog or ISDN calls in the same 8.75" tall Total Control chassis that's been the access platform to leading networks for more than a decade.

Grow with the leaders.

Be prepared for tomorrow's demands with Total Control's award-winning software upgradable architecture that's designed to support new technologies like multimedia and voice-over-IP. Satisfy today's demand for faster downloads† with x2™ technology. Grow with Total Control, the remote access platform of choice from the leader in networking.

Save Up To \$3,900.

For a limited time, you can double your port count and save up to \$3,900 with 3Com's Double Up! program.*

**Choose Total Control...
The Remote Access
Platform of Choice™**

For more information about the premier high density solution and a free CD ROM that lets you build your own virtual Total Control system, call 1-800-877-7533, ext. 6973 or visit hiper.3com.com.

The 3Com Conference on Information Access will be coming to a city near you. See Web site for details.

And check out our ISP-only marketing programs at:
www.3com.com/solutions/svprovider/promos.html.

COME SEE US AT ISPCON BOOTH # 612



Total Control. From the leader in networking.

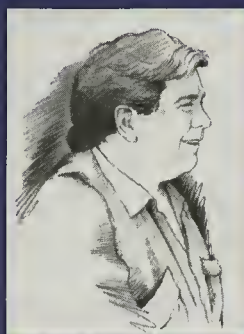
3Com

FABLE OF CONTENTS

BOARDWATCH MAGAZINE

Guide to Internet Access and the World Wide Web

ISSN: 1054-2760
Volume XII, Issue 3
MARCH 1998



**Jack Rickard —
EDITOR'S NOTES**
You, Me, And Computer III
The xDSL Rosetta Stone 6

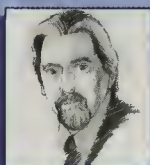
IN MY HUMBLE OPINION
Letters to the Editor 10



**John C. Dvorak —
DVORAK ONLINE**
The Third Age of Computing 192



**Jim Thompson —
TECHNOLOGY FRONT**
Coolpix 300—The James Bond
Camera From Nikon 54



**Thom Stark —
@INTERNET**
Ask Not What Your Users
Can Do For You 60



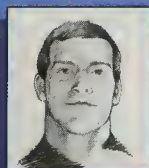
**Steve Stroh —
WIRELESS DATA DEVELOPMENTS**
The Last Fifty Feet 70



**Durant Imboden —
PUTTING THE NET TO WORK**
Web Site Promotion, Tracking, and
Search Utilities 66



**Forrest Stroud —
CONSUMMATE WINSOCK APPS**
The End of an Era . . .
And the Beginning of Another 88



**Rudolph Geist —
POLICY FORUM**
Update: The FCC's \$2.25 Billion
School And Library Subsidy Program 94



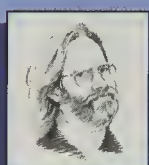
**Ric Manning —
MANNING THE WIRES**
White House Conference Puts
Spotlight on "Censorware" 120



**Paul Stapleton —
ISP\$ MARKET REPORT**
Calculating Return on Investment,
Zeroing in on Churn 128



**Bill McCarthy —
ISP MATING RITUALS**
MCI: Wherefore Art Thou, WorldCom. . . . 148



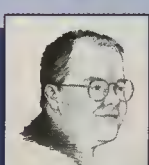
**Doug Shaker —
JAVA JITTERS**
Working on Some Code Again. 156



**Wallace Wang —
BIG BOARD BRIEFS**
America Online Offers
E-mail Access over the Web. 168
NOTES FROM THE UNDERGROUND
Unconventional Software 186



**Doug Mohny —
STREAMING MEDIA**
Streaming to go —
Consumer and Producer 172



**Richard Baguley —
EURO NEWS**
Developments in the
Netherlands 176

ALSO

COVER STORY—

The 56K Modem Battle

New V.90 Standard - Odd Findings and Startling Results - And It Does Appear to Matter

Jack Rickard 24

Humor Mailing Lists

Ray Owens 50

Lessons Learned in the LADS Tariff Proceedings in Colorado

Janet Coursey 72

A Patent Lawyer's Perspective

Carl Oppedahl 76

The Rest of the Story Concerning the US West LADS Tariff Proceedings

Todd Erickson 76

Virtual Carriers — Voice over Frame Relay

Frank Ohrtman 78

Boom Times in South Africa

Richard Stiennon 84

FCC Computer III Inquiry

The U.S. Federal Communications Commission 100

ExecPC Stalks the Elusive MegaPOP:

A Blueprint for Entering the Chicago Market

Greg Ryan 116

Marketing 101 for ISPs —

Showing your Stuff

Michael Greenbaum 124

A Proposal to Improve Technical Management of

Internet Names and Addresses Discussion — Draft

U.S. Department of Commerce 132

The End of an Internet Era;

Monopoly Moves to Competitive Registrations

Bill McCarthy 180

Kevin & Kell

Bill Holbrook 193

TELEBITS 28

Special Law Enforcement Session to Take Place at ISPCON Spring 98

Netscape Communicator and Its Source Code Now Free

Site Zap — A Remote Control Web Camera

New Version of Calypso to Filter out Spam

Cisco Adds Special Service Features to New Operating System

Free Clipart, Animated GIFs and Sounds Online

Rascal RS2000 — A Remote Access Server on a Card

Egghead Shuts Its Doors — Moves to Internet-Based Sales

SiteFire Speeds Up Access Using Local Storage

Net Access Offers Back-End Services for ISPs

ITserv Launches Audio E-mail Server

Priori's New Hired Guns

O'Reilly Updates TCP/IP Network Administration Book

A Thousand Books Available for Download

Register.Com Offers Free Domain Name Registration Online

LISTS OF THINGS

WebWatch Ads 190

Advertisers List 194

Editor/Publisher

Jack Rickard

Associate Publisher

Brian Noto

Advertising Sales Manager

Bill Pettit

Technical Director

Gary Funk

Database Manager

Alan Christian

Editor-At-Fault

Steve Clark

Copy Editors

Bill McCarthy

Todd Erickson

Contributing Writers

Richard Baguley

Janet Coursey

John Dvorak

Rudy Geist

Michael

Greenbaum

Durant Imboden

Frank Ohrtman

Carl Oppedahl

Ray Owens

Ric Manning

Doug Mohnney

Greg Ryan

Doug Shaker

Paul Stapleton

Thom Stark

Richard Stiennon

Steve Stroh

Forrest Stroud

Jim Thompson

Wallace Wang

Production Manager

Bill Gerardi

Graphic Design and Production

Marla Asheim

John Fellers

Kathy Meyers

Subscriptions/Circulation

Cathy Rougier

Advertising Sales

Donny Yoshida

Laurel Zimmer

ISPCON Information

Bob Holley

(800) 933-6038

Editorial Offices

8500 W. Bowles Ave., Suite 210

Littleton, CO 80123

(303)933-8724 Editorial

(303)933-2939 Fax

(800)933-6038 Subscriptions

<http://www.boardwatch.com>

World Wide Web

<http://www.boardwatch.com>

Electronic Mail

Internet:

jack.rickard@boardwatch.com

subscriptions@boardwatch.com

\$5.95 U.S. and Canada

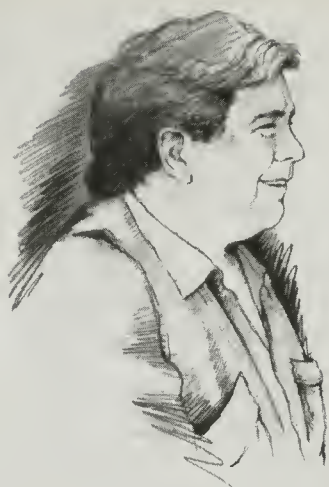
Boardwatch Magazine (Issn:1054-2760) is published monthly at an annual subscription rate of \$36. (\$99 Overseas) by *Boardwatch Magazine*, 8500 W. Bowles Ave., Suite 210, Littleton, CO. 80123. Periodicals Postage paid at Littleton, CO and at additional mailing offices.

POSTMASTER: Send address changes to: *Boardwatch Magazine*, 8500 West Bowles Ave. Suite 210, Littleton, CO 80123

Printed in Canada

Copyright 1998 Jack Rickard
All Rights Reserved

cover design: John Fellers



EDITOR'S NOTES

by Jack Rickard

YOU, ME, AND COMPUTER III - THE XDSL ROSETTA STONE

In this issue, we profile the results of some very interesting tests in the 56K modem wars.

One of the interesting things about the past year is the number of people new to the industry IN the developer side. It has all seemed a panic of epic proportions to them to such a degree that all ethics and truth have been abandoned in the face of marketing imperatives. To us, it was spring modem fashions 1997 and there'll be another next year.

As it so happens, there already is. The difference between xDSL and the current crop of modems is diminishing rapidly. The final step is to move data off the switch onto bare copper and enjoy a huge leap in bandwidth. Modems will still look and act like modems. The term modem won't make much sense, since they'll neither modulate nor demodulate - a term that has outgrown its time. Undoubtedly we'll call them xDSL modems. As the editor of a magazine titled *Boardwatch* that is entirely about Internet service provider issues, I'm familiar with the paradox.

XDSL, or high-speed digital subscriber line technology, is about to come into its day in the sun. This has been one of the most promising technologies to come along in some time for increasing bandwidth to the home.

The bandwidth to the home issue actually goes back decades. The obvious choice 15 years ago was fiber optic cables to each house. But the costs to rewire the "last mile" of the communications network with fiber were astronomical - estimated at \$200 billion in the mid-eighties. I made several predictions back then that have all more or less come to pass.

1. ***The only way we will ever get fiber into the home is on the back of video. It will not be economically feasible for data applications alone.*** This has turned out to be quite true. Consumers do like their MTV. And some cable television deployment of fiber has happened, solely for video uses. They are now just beginning to experiment with Internet access over this fiber. The oft discussed plans of telephone companies to fiber homes and deliver video just never happened.
2. ***It won't matter. We'll develop technologies to deliver bandwidth to the home over ordinary copper.*** This was derided as the smoke of a madman at the time. But it has been happening incrementally with ever increasing modem speeds, culminating in the current 56K modems that oxymoronically deliver about 48 Kbps. Bonded ISDN has also

emerged to deliver 128 Kbps. Now xDSL promises speeds up to 8 Mbps potentially over existing copper lines to homes.

3. ***The need for varied communication products in the future requires a competitive local telephone company environment. Let every man with a battered '68 Chevy panel truck and a rusty pair of pliers who wants to be a telephone company BE a telephone company.*** This from an April '88 *Boardwatch* editorial. Again, this caused actual belly laughs of derision over how wacky I was and how I didn't have a clue and didn't know what I was talking about etc., etc., etc. ad nauseum. I've repeated it over the years and repeatedly have even sympathetic and earnest friends and supporters ask me what I "REALLY" mean by this. I really mean it just the way I wrote it the first time, and it is in plain English. I don't know how to explain it other than to repeat it. If you want to be a telephone company, and have an old truck and a pair of pliers, you should be able to be a telephone company. And we need you if we are ever to get the varied and often specialized services that will be required in the future. The Telecommunications Act of 1996, imperfectly perhaps, mandates this.

It's all coming together in very current fashion. There is a little bit of Internet access over fiber from cable television companies. Penetration of this is miniscule and really will be for much longer than most pundits today can fathom. But copper is ubiquitous. And xDSL has come quite a distance, so to speak.

Distance being most of the problem with xDSL. Initially, it delivered pretty good bandwidth at distances of up to 5,000 feet. Interesting, but not very useful actually. There isn't much within 5,000 feet in our communications network. A new generation claimed 12,000 feet and the world woke up to it a bit. Currently, as distances of 18,000-22,000 linear feet are claimed (a bit of disingenuous confusion between actual performance and vendor claims as always), it becomes intensely interesting. I think it can be extended a bit more in the future.

Note that this is circuit feet, not feet as the crow flies. And for Internet service providers, total circuit feet includes the distance from the ISP equipment room to the telephone company central office, plus the distance from the telco CO to the subscriber location.

Some ISPs have indeed experimented with xDSL over the past year. But the equipment was somewhat expensive due to the low volumes, and they had a devilish time actually getting circuits.

In most cases, bare copper circuits were available from telephone companies. They had been tariffed originally for burglar alarm companies and are usually termed Local Area Data circuits or LAD circuits. You could typically order a LAD circuit between two locations for as little as \$30 per month - an oddity at that when full residential telephone service is usually available at \$15 and even business service in most markets is typically in the \$30 range. But in any event, they were available.

We pointed this out in a March 1997 editorial responding to US West's claim that ISPs were bogging down their voice telephone switches. We somewhat thoroughly debunked this claim, but noted that if there were ANY truth to it, the telcos should be most anxious to get ISPs using LAD circuits and xDSL.

Well, predictably enough they were less than anxious. The regional Bells had, in fact, been engaging in activity that was frankly against the law in most jurisdictions. ISPs would call about LAD circuits and in many cases be told point blank that there was no such thing and they couldn't have it, even when it was tariffed and available.

Worse, in response to our March editorial, US West filed in all fourteen states to remove the LAD circuit tariff. We actually filed to intervene in the proceedings here in Colorado, and we think we have it stopped. A number of local ISPs as well as MCI Communications also got into the act here locally and MCI was very effective in providing information to stop this. But many other states lacking any champion or organized resistance agreed to pull the tariffs and ISPs in those states can no longer order the LAD circuits at all. This basically moved copper availability from the basic services category to unbundled copper available only to competitive telcos and NOT to ISPs. This is a bit key, as you'll see. It's also one of the most viciously anti-competitive acts we've seen from regional Bell operating companies.

This month, a couple of further developments have heated the xDSL area. US West has announced Internet access products using xDSL in 40 cities by June 1998 at various bandwidths and at prices as low as \$40 per month. And Microsoft, Intel, and Compaq Computer have joined forces to push xDSL as an access technology. Between the three of them, they do in fact have the smoke to do the volume/price magic trick and make xDSL modems cost about the same as any other modem.

But the RBOCs have a huge advantage currently over local Internet service providers in providing xDSL. They have access to the copper. And they are very busy making sure ISPs don't have access to the copper. They see this as a way to basically steal the dial-up access market now that smaller companies have demonstrated the market exists.

There are some huge problems lying in wait for the RBOCs. The customer service problem is still there. And there are some mathematical functions regarding end-user bandwidth fanout from available trunks that I don't think they've quite worked out on their magic calculators. US West's announcement to have xDSL in 40 cities, and the product actually being available to customers in those 40 cities, is probably displaced by a time fantasy zone of a couple of years. The company has never had a problem with announcing and advertising products that you can't have.

On a national and policy level, communications companies have had to choose between being a competitive local

exchange carrier, or CLEC, and an enhance service provider - ISP for the most part. ISPs have access to "basic" services from telephone companies. CLECs have access to unbundled products such as access to copper. Indeed, some ISPs have actually become CLECs.

But the FCC has just opened an inquiry titled ***Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review - Review of Computer III and ONA Safeguards and Requirements***

These titles are truly amazing. You could hardly tell this had anything interesting to do with anything interesting from the title. But the document proposes something quite progressive - allowing ISPs to have access to the same collocation and unbundled copper provisions as CLECs. This would ensure a competitive environment for xDSL where any ISP could in theory deliver xDSL as well.

I received this from an anonymous but well placed source. I'm printing it as most of my editorial this month, along with the full text of the *Computer III Further Remand Proceedings* document.

It is said that old telecommunications issues never die.

Seldom, however, is a wholly new communications community afforded the opportunity to address present difficulties in the review of a decade old regulatory proceeding.

This possibility is now on offer to the over 4,000 Internet service providers. The question is whether they realize it, and whether they will act.

The name is not engaging: "Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review - Review of Computer III and ONA Safeguards and Requirements" and can be found on the FCC web site at http://www.fcc.gov/Bureaus/Common_Carrier/Notices/1998/fcc_98008.html.

The "Computer III" proceeding (as in Computer I, III, and III) has its roots in the early days of the computer-telephone marriage and, initially, addressed the question of whether data processing, computer information and message switching or any combination thereof should be subject to regulation. Later, the FCC distinguished between "basic services" and "enhanced services". The latter involved "computer processing applications that act on the format, content, code, protocol or similar aspects of the subscriber's transmitted information, or provide the subscriber additional, different, or restructured information, or involve subscriber interaction with stored information." "ONA" or "open network architecture" was a regulatory attempt to ensure that the recently divested Regional Bell Operating Companies would develop a network that provided for equal access to all providers of enhanced services. It afforded enhanced service providers access to the same "basic service



functions" that the telephone companies used to provide their own enhanced services.

ONA is a regulatory construct that was developed in 1985. The World Wide Web had not yet been imagined. The first browser was years in the future. No one was really certain what an "enhanced service" actually was. It is as though the FCC knew that it was on to something, but didn't know exactly what.

Well, as happens, the Computer III decision went to court. Not once but several times.

In the mean time, the Telecommunications Act of 1996 was passed, and, among lots of other things, it required incumbent telephone companies to unbundle network elements and make them available to new, competing telephone companies. But since "enhanced service providers" aren't telephone companies, they are not able to obtain "unbundled network elements" but only "basic service functions". Well, so what? Isn't this just a lot of lawyerly jargon?

Actually, it turns out to be quite important to someone who wants a faster Internet connection. (Don't we all?)

What has happened in the intervening years since the FCC's Computer III decision is that "enhanced service providers" have been morphed into "Internet service providers". And, since they can get only "basic service functions" from your local phone company, they can't go to its central office and demand access to the twisted copper pair of wires that runs to your house. This means your ISP cannot control the "upstream" end of your phone line.

Now, high speed digital lines using technologies generally referred to as "xDSL" require a modem-like device in your home and a modem-like device on your phone line where it emerges from a cable, just before it connects to a switch in the telephone company's central office. That phone line, from your house to the telephone company's office, is a "local loop" and is also an "unbundled network element" under the terms of the 1996 Act. It is not a "basic service function" under the old ONA regime.

Telephone companies have known about xDSL technology for a number of years now. Why they haven't used it to offer us high speed internet access is a question best addressed to them, although it seems to have to do with other aspects of the Act that would require them to offer this technology to their competitors at prices they regard as insufficient, and to the fact that providing broadband to businesses is more remunerative than providing it to residences.

In any event, the FCC, for the first time in over 12 years, is asking whether internet service providers should have access to the "upstream" side of your phone line in order to offer high speed internet access. The question is being asked now in part because of the Computer III litigation of the past decade.

This issue is encoded within the referenced FCC document. The actual phrasing is: "whether the Commission's current ONA requirements have been effective in providing ISPs with access to the basic services that ISPs need to provide their own information service offerings," and "whether the Commission, under its general rulemaking authority, should extend to ISPs some or all section 251-type unbundling rights, which the Commission previously concluded was not required by section 251 of the Act."

Will the ISP community will break the code, and will any of the 4,000 ISPs seek to differentiate themselves from their telephone competitors by providing residential broadband internet access that most of us would find revolutionary?

Undoubtedly the telcos will voraciously comment on this document while attempting to prevent ISPs from learning of its existence. We have already seen an incredibly devious effort to turn this document into a version of the "modem tax" rumor online. We've received dozens of e-mails from concerned ISPs that this is another attempt by telcos to get ISPs to pay access charges. It is nothing of the sort and the logic behind casting it so is so devilish that I have to suspect telco involvement - though I'm starting to sound paranoid.

In any event, we are reproducing the document in this issue in its entirety. It is also available online. But I would urge every single ISP in the country to actually stop what they're doing, read the thing, and file their own original comment on it with the FCC prior to March 26. I'm not going to provide the convenient form letter, as I abhor such mindless efforts at piling on. But I think every ISP should understand the issues, read this document in its gory entirety, and make their thoughts known formally. Note the section 251 unbundling proposal and make your thoughts on this known sincerely and effectively. With proper enactment, the next wave of modem technology will be available to all players on an equal basis. Without it, you may be left behind. ♦

Jack Rickard
Editor Rotundus

**CONTROL
BANDWIDTH.
MAKE MONEY.
TODAY.**

**SEE US AT
ISPCON
BOOTH #206
MARCH 17-19**

Access Point™ from Xedia® lets you control Internet access speeds and bandwidth allocation policies. So, you can deliver all the bandwidth you've promised — and not a megabit more.

Derive new revenue from existing customers, and easily attract new subscribers. Plus, Access Point is your platform for introducing additional Internet services.

Access Point — the service level control and commitment your customers are asking for.

WWW.XEDIA.COM
800.98.XEDIA (800.989.3342)

XEDIA
Control @ the Access Point

To compete as an Internet Service Provider, you need to offer more than just the connection.

You need to be a step ahead of both your competition AND your customers.
Providing premium Internet services is the strategy that will put you in the lead.

Novell Solutions Make You Unbeatable!

Web and Backbone Acceleration

- Internet Caching
- High Performance Web Hosting
- Load Balancing
- Content Filtering

Managed Networking Services

- Virtual Private Networking
- Firewall and Security Services
- Remote LAN Access
- Software Distribution and Application Rental
- Remote LAN Management

Messaging and Collaboration Services

- Business Class E-mail
- Group Scheduling
- Universal In-box

With more than 55 million Novell NetWare users worldwide, a partnership with Novell will give you the edge you need to stay ahead of your competition.

Don't just keep up. Set the pace.

Call 800-828-3362 and become a **Novell Enhanced Service Provider.**
Or visit our website at www.novell.com/partner for more information.

COME SEE US AT ISPCON BOOTH # 702

Novell®



Letters to the Editor

Boardwatch Magazine
8500 W Bowles Ave Suite 210
Littleton Co 80123

LETTERS TO THE EDITOR

Address correspondence to Letters to the Editor, *Boardwatch Magazine*, 8500 West Bowles Ave., Suite 210, Littleton, CO 80123; by fax to (303)933-2939 or by e-mail to letters@boardwatch.com

A PONZI SCHEME FOR THE LATE 20TH CENTURY — WHAT DO YOU THINK??

Jack,

I am the General Manager of CrossLink Internet based in Springfield, Virginia. We provide services in the mid-Atlantic region. We've just got our hands on a copy of the Erols IPO disclosure statement filed with the SEC. I was wondering if you or your folks have taken a look at it.

Among other highlights of the disclosure statement is an identification of current assets of only \$1.7 million and current liabilities of over \$40 million along with a nine month operating loss (Jan through Sep, 97) of over \$16 million! As some have suspected all along, 100% of the revenues collected in advance for services to be provided in the future have been spent! It looks like a somewhat modernized and updated Ponzi scheme with the current Erol's strategy to have the public (as shareholders) subsidize unprofitable below cost Internet services provided by Erols as they attempt to bulk up market share. Of course, there is no great talent required to sell something at less than cost, particularly in an expanding market!

The financial figures provided in the disclosure statement suggest that Erol Onoran himself will pocket over \$5,000,000 from this stock sale. Even assuming, as the disclosure statement does, that 100% of the remaining proceeds will go the company (one would expect the underwriters would charge a fairly hefty fee to unload this one), Erols Internet as a whole would still have a negative net worth!

In another interesting wrinkle, it is revealed on page 48 that the Erol's operation does not even have the undisputed

right to the "Erol's" name for use as an Internet provider.

Finally, if successful, at the close of the offering, Erols will have 8,337,779 shares outstanding. With an initial price of \$12 per share, the estimated market capitalization would be in excess of \$100,000,000. Given the approximately 273,000 subscribers, this would suggest a valuation per subscriber of \$366. This seems quite high for a company with no operating capital and whose growth has been achieved by providing services at prices well below their "peers". It would be interesting to analyze similar per subscriber valuations for MindSpring, EarthLink, etc. My staff is working on this. I would like your thoughts.

Ed

Ed:

Well the key is the no operating capital. If the IPO is successful, they would have plenty of it. IPOs ARE a kind of Ponzi scheme, at least as practiced over the past few years. If investors buy in, it works — more or less. 273,000 subscribers is a pretty good chunk actually. But I think you'll find that what's happening with Erols isn't particularly unusual in this market..

Jack Rickard

◆ ◆ ◆

WHERE ARE THEY?

Jack:

I really enjoy your Boardwatch Magazine and ISPCON's (Which I have attended the last 2 years). I have a question that you might be able to answer. I see in articles on the Internet that 13% of the US Population doesn't have local Internet access. My question is where is

the 13% located? From talking to ISPs etc., It seems more like 95% of the population is covered by local dial up service.

Tom

Tom:

I would lean more toward the 13 percent figure. They are located in small towns scattered across the landscape where calls to any major metropolitan area are a toll call and no ISP serves them. Typically, this is because the cost of bringing in a leased line is quite high due to the remote nature of the location, and the local population is too small to produce more than a few hundred customers. This rural fringe is where quite a few ISPs are doing some marvelous work and virtually without competition. My own uncle retired to San Manuel, Arizona, and faced this situation. Very upscale, upper income area with high educational demographics. In fact, I didn't think it was all that "remote" with some 20,000 people. But ALL Internet access involved a toll charge, even to the supposedly national services such as AOL and AT&T WorldNet.

It's actually very common.

Jack Rickard

◆ ◆ ◆

Java Jitters

I just sent a note to Doug Shaker telling him how much I adore his column, and how much I hope he will not ruin it by starting to talk about Java.

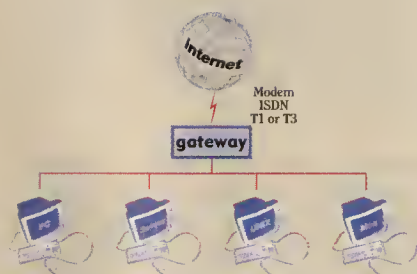
Kas Thomas
Wilton, CT

Kas:

We don't exactly insist on content in our columns that is precisely on topic. But

VA Research... Always the Right Choice for Connectivity

VA Research Internet gateway solutions provide you with a full line of easy and inexpensive options for connecting workgroups to the Internet. Simply plug one of our Internet gateways into your local network and communications line, point a Web browser at it, and configure.



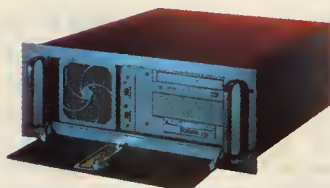
UGate

The UGate is the ideal solution for sharing one PPP Internet connection among a small workgroup. You no longer need accounts or phone lines for each user. Setup is easy. UGate includes a DHCP server that automatically assigns IP addresses to each computer on a local network. Configuration is controlled from your web browser. Dial-on-Demand keeps connection costs down. Finally, there's no special software to install on your clients.



SOHOConnect

SOHOConnect gives you the full set of Internet Servers in a single box: Web, FTP and email. It's perfect for the Small Office/Home Office environment. Like the UGate, SOHOConnect also includes a DHCP server and IP Masquerading. It's configured using a java interface, and can be managed from any web browser.



YESBox

YESBox is Your Everything Server with all the features and muscle you need to support the Internet at your enterprise. It includes a full suite of Internet servers (Web, DNS, FTP, email, etc.) and is configured from a Web browser. In addition YESBox includes advanced features such as a packet filtering firewall and virtual Web hosting. For more demanding needs YESBox is available with a T1 Frame Relay WAN interface and is rack-mount capable. ISPs can do all setup remotely for the end user by creating a YESBox config file and downloading the configuration to a YESBox by modem.

Features Comparison Chart

	UGate	SOHOConnect	YESBox
WAN Interfaces	RS-232 (supports external modem or ISDN)	56K Modem RS-232 for external ISDN	56K Modem T1/Frame Relay 10/100 Mbps Ethernet
LAN Interface	10Mbps Ethernet	10Mbps Ethernet	10/100Mbps Ethernet
Web-based Config	✓	✓	✓
Dial-on-Demand	✓	✓	✓
IP Masquerading	✓	✓	✓
Web Server		✓	✓
FTP Server		✓	✓
POP3/IMAP Email Server		✓	✓
WFW File Server			✓
NFS File Server			✓
IP Aliasing			✓
Packet Filter Firewall			✓
DNS Server			✓
ISP Remote Configure			✓
Price	\$269	\$1895	\$4995 base



a **UMAX** affiliate

VA Research, Inc.
1235 Pear Ave., Suite 109
Mountain View, CA 94043

1.888.LINUX.4U

Tel: +1.650.934.3666

Fax: +1.650.964.7668

email: sales@varesearch.com

web: <http://www.varesearch.com>

VA Research also offers a complete line of Linux Workstations. Our Linux Workstations offer you a high-performance cost-effective alternative to traditional UNIX workstations.

Doug does put together an interesting read whatever he's on about.

Jack Rickard

◆◆◆

INTERNET ARCHITECTURE

I just want to THANK YOU your tremendous article on Internet Architecture. It is the BEST BY FAR I have ever seen on the topic.

For a long time I've been asking all the technical people I know, "who owns the physical components of the Internet?" Like the arrogant cusses most technical people are (including me), they would all act smug and say, "no one." Yea right. No one owns the cables or routers. Public service.....sure.

Well, now I can't quite say I can answer the question authoritatively, but I have a much better idea than before on how the Internet works.

I was impressed both by the enormity of your information base, as well as your brilliant writing. To top it off, the last page or two had me laughing my %\$# off!

You are really making a great contribution. Thank you!

Dan Allen
Software Architect
Boston, Massachusetts

Dan:

Very pleased to hear you found the article useful. As you found out, beyond some rather broadly vague platitudes, most people, including network engineers, don't really have an overall grasp of what the Internet is in a systemic sense. Frankly, I'm not sure I do either, but the article on Internet architecture would more appropriately be considered "one gentleman's view" of what the Internet is. It is very U.S. centric, and not without other bias in many ways. But it has gained some acceptance as more or less how the whole thing meshes together. I expected a great deal of criticism over the piece, but it's held together pretty well overall.

Jack Rickard

◆◆◆

WHAT'S IN A NAME?

Dear Jack:

I like to consider myself a loyal reader of your *Boardwatch Magazine*. I religiously read each issue front to back as I find a vast amount of valuable information on the fastest growing industry, particularly your market/stock reports, technology news and last but not least, your feature articles.

Imagine my disappointment while reading January's feature article "Dancing Elephants: WorldCom, MCI, GTE, Genuity, Qwest, in an Internet Mating Ritual" where you discuss PSI's 1997 multi-marital activities w/Canadian iStar and the American partner, ICX Communications. For your information, the company that partnered w/PSI in 1997 (and now owns 20%) was not ICX but rather IXC Communications, based out of Austin, Tx. I should know, I work there (or rather here as I'm writing to you from the IXC headquarters). ICX, aka, Internet Commerce Exchange is a company owned by Internet Design Group, providing Internet access in the Tennessee and surrounding areas and to my knowledge, I don't think they're building a 10K OC-48 fiber network nor can provide one for any backbone provider in the near future.

The reason I write to you is that I value your magazine, I consider it one of the more informative ones devoted to covering the Internet industry and I hope you'll take some interest in learning more about our company and what we're about. (Perhaps you'd like to do a feature article on us? you could include Qwest as well, comparing network size, revenues, etc.?) Our site is www.ixc-comm.net

PS - thanks for the figs on dial-up users in US you sent earlier this month.

Respectfully yours,
Suzanne Aldrich
Market Analyst - Emerging Markets

Suzanne:

Deepest apologies for the IXC/ICX mix up. We're struggling with names these days. Having been accused of being Boardwalk Magazine for so many years, I'm familiar with the irritation it causes. We'll try to do better.

Yes, we'd like to learn more about IXC Communications.

Jack Rickard

◆◆◆

DON'T HOLD BACK, JACK! TELL US HOW YOUR REALLY FEEL.

Regarding your December Issue and the discussion on Unsolicited Commercial E-Mail:

This week I was spammed by the Lt. Governor, State of Nevada. I expect that most of the 250,000 Comdex attendees were, because that's where they admittedly got my business e-mail address. The message was delivered by a Comdex Exhibitor (1-800-Batteries) on behalf of the Lt. Governor, Dr. Lonnie Hammargren, with a shameless plug for their product. It seems that the Lt. Governor wants most or all of the Comdex attendees to relocate from Silicon Valley to Reno, NV. (messaged attached for reference)

Although I receive (and attempt to block) between one and twenty UCE messages daily which are addressed to my casual e-mail account, I had no problem with this UCE, because at least they were honest about it. I have a real problem with UCE when the sender uses unauthorized mail relays, forges the headers and disguises the sender's origin, making error messages undeliverable which ultimately come back to me as an administrative task. Not only is that cowardly and unethical, *That* is what I classify as "Theft of Services". That should be illegal, or even classified as a act of fraud under Federal jurisdiction, just as Mail Fraud is when delivered via the U.S. Postal Service.

Furthermore, the Lt. Governor of Nevada and 1-800-Batteries (what I consider to be legitimate UCE originators) should be required by law to include an X-Header that identifies the message as "Unsolicited Commercial E-Mail" just as plain as day. That way I wouldn't need to take the painful steps of the daily updates to my mail server configuration for blocking their UCE. I could simply use a filter that handles the Advertisements as I see fit on any given day of the week. After all, I may be interested in their offering, just as I find interest in some products advertised in your publication. More often, however, I will use a mail filter to "Turn down the volume" just as I do when a commercial interrupts a movie that I might be watching on television.

Joe Biniskiewicz, Product Manager,
OEM Software Berkeley Software Design, Inc

“Great
discoveries

and improvements

invariably involve

the cooperation of many minds.”

-Alexander Graham Bell

When you think of reliable Internet solutions, think IBM. Come visit us at Booth #234.



Solutions for a small planet™

ISP GROWTH SOLUTIONS

*Proven Formula for
Success!*

- Upgrade analog business customers to Digital Access
- Upgrade dial-up business customers to Dedicated Access
- Expand and co-locate
- Let CICAT Networks manage your access requirements while you manage your service!



FREE SERVICES:

Digital Line Ordering

Nationwide Price
Quoting

Order Tracking and
Scheduling

Equipment Setup &
Configuration



800-988-ISDN www.cicat.com

ISDN - T1 - T3 - FRAME RELAY - XDSL

PS: Keep up the excellent work. I'm looking forward to seeing you and Bob Holley again in Baltimore this spring.

Here's the original UCE:

I hope you had a profitable business trip to Las Vegas, Nevada last month. I am emailing you to tell you about Nevada's pro-business environment and highlight one of the many fast growing high-tech companies that recently moved to Nevada. Many Comdex attendees only see the strip and don't realize the competitive high-tech business environment our state has to offer:

No personal income tax
No corporate tax
Centrally located near major markets
Excellent high-tech infrastructure due to aerospace history
Two excellent international airports (Reno and Las Vegas)

Softbank established a 24 hour call center here last year with over 600 employees. Microsoft will open a 250 person division in Reno this spring. Most recently, 1-800-Batteries, the country's leading provider of laptop, cellular and two-way radio batteries and accessories, relocated their world headquarters from Silicon Valley to the beautiful foothills of the Sierra Mountains in northern Nevada. Ken Hawk, the CEO and founder of 1-800-Batteries (<http://www.1800Batteries.com>) is sending this message for me and he would like to add the following testimonial and offer:

We moved 1-800-Batteries to Nevada in June 1997 to accommodate our 120% annual growth rate. In addition to the tax breaks, here are just a few of the advantages Northern Nevada has to offer:

- Building lease rates 50% less than Silicon Valley Housing prices
- 60% less than Silicon Valley
- Year round sports including world class skiing, mountain biking, fishing and hiking.
- Hard working, affordable, well trained work force.
- Excellent schools and neighborhoods for raising your family.
- Four hour drive or one hour flight to Silicon Valley
- Extremely helpful and accessible government

It is no wonder that Nevada is the fastest growing state in America. Our company is not only thriving in Nevada's pro-business environment, but our

employees are enjoying a higher standard of living with affordable housing, clean, traffic free roads and unlimited access to world-class outdoor activities.

OFFER: If you are interested in hearing an unbiased view on the benefits of Nevada, please email me at: [mail to:Ha wk@1800Batteries.com](mailto:mailto:Ha wk@1800Batteries.com) If you ever visit our area and are considering moving your business, I will buy you lunch!

Of course if you have any needs for laptop, cellular, camcorder, or two-way radio battery packs, please call 1-800-Batteries (1-800-228-8374) 24 hours a day, 365 days a year. Mention keycode NV101H and you'll get \$10 off your first order.

Best Regards,

Ken Hawk
CEO/Founder
1-800-Batteries

Please check out Nevada's website at www.tpusa.com/nevada for more details. If you would like to learn more please email Peter Cunningham, Director of International Trade, Nevada Commission on Economic Development at: mailto:pcunning@ix.netcom.com

Regards,

Dr. Lonnie Hammargren
Lt. Governor
State of Nevada

I am mildly uncomfortable with the entire "theft of services" theory. But beyond that, I agree with everything you've said. And I think there are some possible breakthroughs coming legislatively. I understand a bill is being introduced in the California assembly this session per blueprint your e-mail message.

Jack Rickard

♦ ♦ ♦

AVOIDING REINVENTIONS TO MEASURE ISP

Thom

I just finished your Jan98 @Internet article in Boardwatch and it's very close to identifying the right tool for me. I'm looking for a tool that will log the statistical performance of a ISP (FTP delay, download speed, mail delays) after a successful dial-up connection. Rather than re-inventing the wheel by combining

YOUR SLOTS JUST HIT THE JACKPOT.



Double the x2 ports in your existing Total Control chassis in one easy shot with Westcon's HiPer Double Up program.

If you're looking for a smart way to increase profits in your business, you've come to the right place. Because Westcon, the premier distributor of advanced networking solutions, is joining with 3Com to create the HiPer Double Up program. It doubles the number of x2 ports in the Total Control chassis you have – from 48 to 96 lines. And it's fast, easy and affordable to do.

3Com HiPer DSP Cards: future-ready.

Future expansion is easy with the HiPer DSP Card. In addition to doubling your 56Kbps-capable lines, it handles ISDN and T1/E1 interfaces and provides software upgradability for multimedia video-conferencing and data encryption/decompression.

We even make it easy to afford.

You're convinced you want to upgrade with the HiPer Double Up program – and the biggest challenge is money, right? So rest easy. Westcon helps you take care of the cash crunch with one of the most flexible leasing programs in the industry. It's all part of our commitment to help you build your business.

The smart money's on Westcon.

Now that you know how to double your Total Control x2 capacity with 3Com HiPer DSP Cards – and why you should make Westcon your primary value-added distributor – take the next step.

Call Westcon at 800 511-7256 or visit our Website to learn more.



©1997 Westcon Inc., All products and names are registered trademarks of their respective companies.

THE CENTER FOR ADVANCED NETWORKING
WESTCON
www.westcon.com/hiper

existing Unix tools and setting up a PC with Linux — do you know of an existing toolset??

Victor O'Rear

The toolset(s) you're looking for may well be Net.Medic, Net.Medic Pro and/or VitalAnalysis, all products of VitalSigns Software (www.vitalsigns.com). Net.Medic (not to be confused with the Network Associates product of the same name) and its bigger, more professional brother provide a lot of end-user diagnostic information on connection speed, latency and so on.

Net.Medic is a shareware product, available only for Windows 95/NT, that operates as a set of plug-ins for Netscape Navigator 3.x or higher and Internet Explorer 3.x or higher.

Check VitalSigns' web site for more information and downloadable product.

Hope this has been responsive.

Regards,

Thom Stark

◆◆◆

REQUEST FOR INFO & ESTIMATE

Dear Thom Stark,

I like your columns in Boardwatch and your bio.

I have a yes / no question for you and if yes can you give me a cost estimate for the code to accomplish the task please?

What I would like to do is get the dial telephone number the user's modem is using to connect to the Internet with when they visit our web site.

Surely there is a way to get this number automatically — what with all the mapping programs etc. Once you find their ISP it should not be too difficult to read the telephone number they are using, or is it??

Thank you,

Charles Haynes

The short answer to your question is "no."

The longer answer is that you're really asking a cross-platform question. The two platforms are IP networking and telephony, specifically ANI (automatic number identification) technology.

In order to do what you're interested in, you would have to get the cooperation of the user's ISP, since it is the ISP that would have to:

- a. order and pay his telco for ANI services*
- b. build the application that would allow a finger-style query to return ANI information for a leased IP address and*
- c. agree to make that information public (i.e. —disclose it to you).*

Since most telcos impose additional, per-line fees for ANI and since most ISPs don't have an identifiable need for the information, I suspect a. will be a tough sell — particularly as a standard industry practice. (However, the ability to ID the phone number to which a leased IP address currently belongs does have certain merits — such as the ability to identify dial-in spammers — that could, in time, make it attractive enough to ISPs to justify the expense.)

If a. were satisfied, I suspect the marketplace would rapidly address b.

c. is a knottier problem. It touches on privacy issues and it would make an attractive target for legislative prohibition. In addition, if the ANI technology used is Caller ID, (a subset of ANI,) per-call or blanket customer blocking would defeat it.

FYI, in California, some 35% of Pacific Bell customers have chosen total Caller ID blocking — and I'm one of them..

Hope this is responsive.

Regards,

Thom Stark

◆◆◆

WEB EDITION

Hi Jack,

(Standard love your rag, read it every month paragraph).

I was wondering if you have an opinion on why the FBI would require an ISP to post a notice on the announcement page stating users have "no right to privacy" on the system? When I stopped by to ask why, a long time staff member told me, the FBI insisted on the notice before any investigation of a hacker would be started. I know how hard it would be to guarantee privacy, but the idea, its okay to monitor, log and disclose a users activities with out the suspicion of wrong doing

on their part, seems like a big step for an investigative agency to implement.

Another question, any idea how much profit you realize from each newsstand sale? I haven't paid for many copies for the last two years (love your web site) and would like to know if you have a favorite worthy cause or something. Or if you ever get down to Springfield, MO in your Hummer, I'll give ya a ride down a couple of our narrow little trails in my CJ ;

Thanks,

Travis Smith

Travis:

The thing sounds like a bunch of hooey. The Electronic Privacy Act of 1986 has some requirements for anyone operating an e-mail service. This has been strangely twisted by some of the online would be lawyers. But in any event, the act does allow routine monitoring of mail for administrative and troubleshooting purposes. A few years ago, several legal pundits came up with this "NO PRIVACY" banner as a purported way to get around some of the elements of this law. I never thought it would work, and don't really know if it did or didn't. But for awhile, most of the bulletin boards in the country were running it on their logon screen. I haven't seen one in several years.

The newsstand is not actually profitable for us, and indeed virtually no magazine realizes profit from newsstand distribution. It makes our advertisers feel better because we are there, so we do it. Roughly, I'm paying you a quarter to read it every time you buy one.

Subscriptions, on the other hand are received directly by us and we depend on an active subscriber base to continue publishing. Boardwatch IS my favorite worthy cause.

I was born and raised in Cape Girardeau. The Springfield area is indeed beautiful with many fantastic trails.

Warmest Regards;

Jack Rickard

◆◆◆

U.S. WEST

Dear Sir:

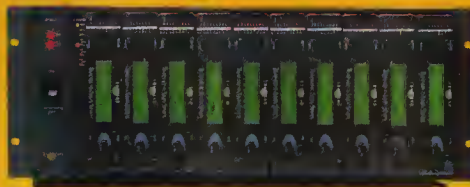
Here is a letter that I have sent to our WUTC office. I hope you take the time to read it.

56k is *everything*
you expected,
ISDN is *cheap*
& *everywhere*,
and **xDSL** will be
d e p l o y e d
on m **o n d a y** - **NOT!**

Escape the hype. The world's fastest modem, the innovative Transend 67, delivers a blazing 67Kbps data stream over regular dial-up phone lines (POTS) ... up-loading and down-loading ... and no digital connection needed.

Give customers ISDN-like performance over standard analog phone lines, anywhere to anywhere. And charge a premium monthly fee for this premium, high speed, high throughput service.

How do we do it? With dual data pumps, channel bonded at the chip level. And a mammoth 150MIPS of on-board processing power.



- No waiting for special lines or a "future" service from the Telcos
- No special set-up, it's plug and go, like a standard modem
- No problem connecting with any v.34 modem, up to 33.6K
- No ifs; it works in hunt groups or as a dedicated service. One Port. One IP address. One authentication.

Big Discounts for ISPs
Call our Partners Hotline 800-654-0623

TRANSEND
modems

www.transendmodems.com

Thanks.

November 19, 1997
Honorable Irving Newhouse
Washington State Senate
309 Legislative Building
P.O. Box 40482
Olympia, WA 98504-0482

RE: U.S. West Communications

Dear Irv:

On March 7, 1997, we purchased a small Internet service provider company (ISP) in downtown Moses Lake, Washington.

Our ISP provides local telephone access to the Internet. We charge a flat monthly fee, which allows our customers, the local exchanges in the Moses Lake area, to access the Internet on a nearly unlimited basis. (We place some restrictions on access in the busy evening hours so that everyone may have access.) We do not charge our customers hourly fees, as do many ISPs. Our policy makes access to the Internet very affordable to businesses and families in the Columbia Basin.

We have established strict business practices concerning customer to modem ratios so that our customers do not receive busy signals when they call us. This insures that our customers get what they pay for, but limits our growth because our customer base is limited by our quantity of telephone lines. You may recall the class action lawsuit filed against America Online because they over sold their Internet service leaving their customers with busy signals.

We purchased this ISP because we anticipated the rapid expansion of the Internet. We immediately ordered 50 additional telephone lines with delivery of the first 25 to made the first of April 1997, and the second block of 25 lines to be installed shortly thereafter. At the time of our order, we had a waiting list of nearly 300 customers.

We were in constant contact with U.S. West concerning the delivery dates of the lines. They assured us that the lines would be installed during the first week of April 1997.

We placed advertisements in the local media to let the public know that we were expanding our service and spent nearly \$30,000 upgrading our computer system in anticipation of the added capacity that

the new lines would bring. Our advertising was successful and we had many potential customers waiting for our service. The lines were not delivered.

During almost daily contact with U.S. West representatives, we were assured that the lines would be installed almost any day. Finally in June, after a loss in confidence by our potential customers, we served U.S. West with a lawsuit to force them to assign a higher priority to our telephone line order and their promises. This seemed to expedite the installation of the telephone lines. We received 25 lines around August 17, 1997. The installation order that was filled was actually the second set of 25 lines; the first set of 25 lines has yet to be installed.

During this time, from April to August, several smaller ISPs have opened for business and received telephone lines. Some of our customers have also received advertising materials from U.S. West stating that U.S. West will be providing Internet access in the Moses Lake area. We receive requests every day for Internet access, but we do not have the telephone lines to provide the service.

On October 29, 1997, an agent for U.S. West telephoned us offering to sell us telephone lines. We ordered 50 lines with delivery promised to be in two weeks. Those lines have not arrived and will not arrive.

There are more details to this story but I have given you a broad view of the problems that we have encountered while dealing in good faith with U.S. West. To date we have lost over \$100,000 of lost revenue, advertising, and outlays of capital, not to mention the lost market share and damage to our reputation, all due to the poor business practices of U.S. West.

We have recently learned from the U.S. West representatives in the field, the guys who actually do the work, that there are no additional telephone lines in Moses Lake. Our only immediate option, which was recently mentioned to us, is to convert our current telephone lines to digital lines. We can convert two analog (normal) telephone lines to 24 digital lines.

If we did this four times, it would give us our needed capacity. OUR problem is that it will cost us an additional \$30,000 in equipment changes and render a large portion of what we spent just last April

obsolete. U.S. West insists on charging us an additional setup fee of \$2,100 for every block of 24 digital lines, or \$8,400, as well as higher monthly rates. We would be helping them to solve THEIR problem. If we are to continue as a viable company we must make this change.

The power of their monopoly should not be under estimated. U.S. West is our only source for telephone service in Moses Lake, Washington. Their monopoly does not allow us to purchase services from a more reputable company. They have made false promises, misrepresented their service, damaged our business, cost us tens of thousands of dollars, and have made plans to compete against us. Our lawsuit has brought little response. They are too powerful of an opponent.

We write to you to make you aware of our plight. Small businesses cannot compete with monopolies that abuse their market strength. We ask that you exert whatever influence you may have to help us resolve this problem.

Sincerely,

Nate Bridges
ValleyNet Services, Inc.
nbridges@bentonrea1.benton
rea.com

◆◆◆

Nate:

I hate to appear unsympathetic, and I'm not. We've fought US West specifically ourselves and caught them more than once in activities that went beyond anti-competitive to just plain dirty crappy behavior.

That said, I would like to take this opportunity to reach out and slap the shit out of you. If you need 25 lines and another 25 lines and yata yata give me 50 more, you're beyond the point of bottom feeding working the admittedly ridiculous pricing differences between individual analog lines and digital trunks. And you're going to have to do it all over again anyway.

Whatever YOU think about 56K modems at the moment, your customers ARE going to at some point start leaving you if you don't offer them. We've just completed testing some, and the USB x2 modems really work quite well. But you HAVE to have the 24 channel digital trunks to play. The regular analog lines don't do the trick. V.90 has just been settled on, and by the end of this year, your customers will be pretty hard on board the 56K ship. After fighting

for these analog lines, you get to turn around again and add both equipment and hassle with US West to get them to digital.

And what I'm hearing is that you have obstinately insisted on doing it your way, in the face of customer demand for service you can't deliver, when there is enough copper going into your site to run about 15 Inetnet service providers into the next century.

I know that dealing with the bureaucracies of telcos can be frustrating. But sometimes in the frustration, we see boogey-men where there are none. You didn't get the copper from US West because they didn't have it available in that area – not because they are moving into Internet services. With copper in place, adding telephone lines is almost an administrative task. But when the last pair is gone, they have to bring in the backhoe and run some more.

We actually ran into an ISP in Texas that had 3000 pair in a single office building. He was amazed to learn you could run 24 channels on a single pair. Just blew him away. Yes, the equipment is more expensive to purchase, but its much easier to operate and much more scaleable as you grow and most of the vendors have lease programs anyway. If you actually get your way with a couple hundred modems, you will find that you have built a nightmare room of stacks and stacks of modems that can't be kept in operation reliably.

Take the hit early on and build intelligently for future growth. In my unqualified, but nonetheless strongly held opinion, it's not the telco that's hampering your growth and future success in this case.

Jack Rickard

◆◆◆

CABLE MODEM MYTH?

Jack,

Firstly:

Over the last few issues of BOARDWATCH I've noticed several letters to you from people in Canada claiming to have great net connections via their cable modems. Canada is supposedly also the most 'wired' country in the world when it comes to net connections and low net access. Well, why then does my cable company seem to have no idea when the cable network will be able to provide

internet access here in my geographical area (St. Catharines, Ontario) ?

A couple winters ago, when our cable provider was ROGERS, I asked when cable modems would be available in this area. The reply from them was "around April". That spring I asked them again and they said it was postponed until last summer. Last summer our cable provider changed to COGECO, who swore it would be ready by sometime in the Fall, and sent me out some info packages on how could sign up. A few weeks ago I asked them and now they have said cable access will not be available until Fall '98! Do these companies have ANY idea what they're doing when it comes to upgrading their network? Is COGECO in Southern Ontario an isolated scenario or is this happening elsewhere in the country?

Secondly,

Exactly HOW FAST are cable modems running at? COGECO has told me 10Mbps (ethernet). Now, I take it that is within the boundaries of the cable network. Can anyone tell me what kind of speeds the cable networks connect to the rest of the 'conventional' network at? It's no use having a modem that's capable of 10Mbps if 10,000 people on the cable network are being bottlenecked through a T1 connection gateway to the rest of the net. Are the high speeds of cable modems limited to sites located directly on their cable company's network?

Keep up the good work!

Marc Nagy
sysop, Zero Reality BBS
z0diac@niagara.com
St. Catharines, ON

Marc:

First, cable is not a monolithic industry. All PR to the contrary, there are over 3000 "cable companies" and they average about 3500 customers each. Your individual cable company will offer Inetnet access when they deem it a profitable business case to do so. Probably not much before. And probably not much after.

MOST of the existing infrastructure in communications has been caught a bit in arrears by the Internet wave. It has become quite common for both telcos and cable companies to announce a lot, and deploy a little, and hope nobody notices until they can get their act together. Your

experience is not really isolated. We have a lot of cable and telco press releases, but very little in the way of connectivity.

How fast are cable modems running? It's an almost impossible question. The 10 Mbps ethernet you cite by way of example is an ironic one. No one has ever gotten 10 Mbps from a 10 Mbps ethernet network, even once in a row, ever. If you can reliably do 2 Mbps over a real world working ethernet, you're in tall clover.

The cable theory pretty much relies on subnets within neighborhoods whose topology is largely driven by the existing segmentation of the cable network itself—where amplifiers etc. are deployed. Since almost all cable trials have been trials, we at least do not have good data showing histograms of how cable subscribers behave and how this particular architecture loads. I assume the cable dudes do at this point but they probably hold the information pretty close.

Finally, there are fiber cable systems and cable cable systems. In the U.S., about 55% of homes have cable, and most of this is RG-58 coaxial cable. Canada has a higher percentage of fiber cable plant and my sense is that they have been a little quicker to provide Inetnet access as a service. The deployment of fiber cable in the U.S. is rather low.

The areas we are seeing where cable is deployed causes an immediate number of ISPs to try to sell their companies and run for the hills. The cable system at this point can provide faster connectivity at an agreeable price – usually about \$40 per month. But we're having a little difficulty gathering any meaningful data showing actual impact on ISP dialup populations when cable shows up in the neighborhood. It is not certain that those paying \$20 per month for slow connections will happily pay \$40 per month for fast connections. It makes sense, but consumer behavior generally doesn't. More to the point, what percentage would upgrade for higher speeds. At this point, it is an unknown quantity.

Jack Rickard

◆◆◆

SHAPE OF THE IMMEDIATE FUTURE

Before going into the main subject of the letter, may I offer my commendations on having the best magazine on the internet/connectivity scene around. Always

intelligent, with editorial biases clearly stated and up front (like a conversation with an intelligent associate who you've known for awhile) instead of having those biases hidden behind the veneer of pseudo-scientific ratings tests like some other group of publications I read... The opinions are clearly stated and articulate. When they are proved wrong it has been admitted and an intelligent analysis of why a wrong opinion was held/put forth follows.

Thank-you - don't change.

On to the real topic of my note:

If you want to see the shape of the immediate future of technology and the internet why don't you come up to Saskatchewan, Canada and take a look around. We have commercial and widespread ADSL, we have commercial and widespread cable modems.

I am always bemused by U.S. based publications (yours is not the worst) that seem to forget that there are other countries in the world where the telecommunications infrastructure is as advanced or more advanced (in a deployment sense) than the US. We have had widespread commercial subscription for cable modem and ADSL services for over a year. I have sent letters to the other magazines, and yours is one that I read regularly, so you get it too, even if it is one of the other that aggravated me to the point where I am writing a note.

Internet magazines have said that there is only experimental deployment of ADSL and Cable Modem technologies. Not here - the experiments ended over a year ago.

We have a fully digital infrastructure (with the exception of 3 remote northern "fly in only" communities who are on radio telephone switches). We have about 25% of all the fibre laid in Canada - our telecom main routes in Saskatchewan are all fibre. Every rinky dink town has digital switching and fibre. And all of this with a population of ~1 million people over 251,700 square miles (compared to Texas at 262,015 square miles and California at 156,297 square miles and your own Colorado at 103,598 square miles). Did I mention that all of this was put into place by one of those "inefficient" government owned monopolies that many of the folks in the internet world complain about - oh, and by the way, I pay roughly 1 cent more per minute for my long distance than I

would in the US. And my local residential phone line cost is \$13 Canadian flat rate (about US \$9.50) per month.

Also, anyone in the whole province can dial one number for internet access without paying toll charges if they are subscribed to the telco's service. The telco charges a reasonable rate - Cdn \$24.95/mo for 60 hours, \$1.50 per hour after. That works out to about US \$17.00/\$1.05. 28.8 service, no long distance, no busy signals because they never let themselves get past 90% usage of the modem pool.

I can also get Cdn \$15/mo flat rate in the major urban centres - about US\$10.00

It may be cold, but it's telecom heaven...

Check it out.

James M. Burton
Bus. 306.569.7790
jburton@bfsmedia.

Sounds good James, and thanks for the report. Could I get you to contact Marc Nagy in St. Catharines, Ontario. You can reach him at zodiac@niagara.com. I heard he has a different take on the topic.

Jack Rickard

◆ ◆ ◆

LEGAL QUESTION

Jack:

Love you...love the mag...loved ISPCON this year, even though I didn't win the Hummer.

Regarding your November editorial, maybe you could cast a little Constitutional interpretation my way. I see a pretty clear distinction between regulating content and controlling usage with respect to spam. Your editorial seems to treat those two activities as the same by implying that if an ISP boots a spammer from his service for overwhelming his mail server by sending tens of thousands of e-mail messages per day, he is a de facto content regulator.

I think it could be argued that the ISP may control extremely high usage that bogs down his resources without necessarily being accused of judging content. Where a conflict exists between the sur-

vival or viability of a business and some Constitutional obligation, the Constitutional obligation sometimes loses or is compromised.

For example, if a 400 pound person sues an airline for not hiring them because they are too fat, the airline will win since they can show that the heavy person could be a safety problem. Or, that they could be inhibited in performing their job function due to not being able to fit down the aircraft's main aisle. Or, even that the person's appearance could drive away customers. In this case the "weight" discrimination against the person is viewed as justifiable since the airline is not judging their weight and appearance as a matter of prejudice, but is judging it from a standpoint of the impact on business.

Similarly, a government can define zoning standards for where a bookstore may do business. But generally the government may not control the content of the books sold at the store. In this case the government may be justified in exercising some control over the bookstore (like location, if adult material is sold there) in the interest of protecting children and controlling crime in the community. Here, the government is not usually accused of censorship, since they can demonstrate practical reasons for that control.

As for the ISPs, why can't they argue that they may legitimately cut off services to spammers due to the stress that the overwhelming amounts of e-mail causes to their systems? Or, that the spammers' activities cause service problems for other customers and hence may drive those customers away (and therefore ultimately compromise their ISP business)? Or, that the quantity of spam flinging across the net is reducing overall Internet performance on backbones nationwide?

Not hiring the 400 pound person could be either discrimination or a legitimate business decision. The real reason: business decision; not discrimination.

Government control of where one may open a bookstore could be censorship or a crime-control / exposure-to-children concern. The real reason: To keep crime in check and kids protected; not censorship.

The cutting off of spammers by ISPs could be censorship or preservation of network performance and capacity. The real reason: the protection and man-

ageability of the business resources; not censorship.

I'm not saying I'm right, but I'm truly interested in the real reason that cutting off spammers is necessarily content control and can't be called business/resource decision? After all, it's not the content of e-mail advertisements that really bugs us, it's the enormous, mailbox-choking quantity - isn't it?

Sincerely,

James Gundrey
James.Gundrey@vb.mdc.com
Los Alamos, CA

James:

First, it is not a Constitutional question at all. Freedom of Speech as a constitutional matter ensures us that the government will not regulate our speech. That doesn't precisely mean that an ISP can't or shouldn't.

If you control behavior in an environment where about the only thing you can do physically is communicate, you do control communication. The line between content control and behavior control drawn by the anti-spammers is strictly one of convenience. It has no detectable logic to it, but it is handy for their purposes in the debate.

My view that they shouldn't control content (behavior) with regards to spam has a lot of little reasons and a couple of big ones behind it. None of them have to do with having Jesus love them or Constitutional questions. The biggest one is that by taking on this role, they make themselves a target for ALL control issues. This isn't a theory James. There's been a tendency from the beginning to scapegoat ISPs for customer BEHAVIOR and activity - usually with regards to copyright infringement etc., by law enforcement and the courts. There are numerous cases where BBS operators, commercial online services, and today's Inetnet service provider have been IN court with real cases not decided in their favor over their subscribers activity in slander, liable, pornography, and copyright infringement.

Currently, it is even worse. Every ilk of whacko liberal victim's advocacy group is intent on keelhauling the Inetnet service provider as the logical pressure point to eliminate web sites devoted to the Ku Klux Klan, violence against women, and for all I know cigarette

smoking. If it's politically incorrect and there is a web site for it, call the ISP that hosts the web site and complain to him. Many of these smarmy little minds are so hopelessly clueless that they call ISPs that DON'T host the web site and try to pressure THEM into shutting it down.

We wouldn't think of calling US West and complaining that someone was using their telephone service to have politically incorrect telephone conversations. We don't even call the telephone company to complain about sales solicitation calls. You just wouldn't think of it. Yet in the case of ISPs, I fear I'm losing the battle here already, and worse, they're lining up to volunteer for it.

Finally, the cohesive nature of the network is threatened when any ISP feels it is appropriate to blackhole any address they feel like and tailor contour what the network looks like to suit themselves. The network is beginning to fracture and what the Internet looks like depends on where you're connected to it and what your ISP is very SECRETIVELY doing in the back room to arrange it to suit themselves.

In short, the delineation of behavior and content is entirely invalid in my view. Handy, but pathetically thin. It leads to the same end, and a poor one at that. ISPs are volunteering for regulatory control of Internet content and activity. I don't think they'll enjoy the role once they have it.

On a libertarian note, you can have a "little bit" of regulation of freedom of speech in the same way you can be a little bit pregnant or a little bit dead. If you're going to have freedom, some of it is going to be a little ugly. But if you are going to have regulation, it is ALL going to be a little ugly.

Jack Rickard

◆◆◆

CABLE MODEMS

Am I missing something here? Every time I hear a cable company threatening 256kb to T1 throughput, I'm asking myself, "1/4 of a T for \$39.95. Why am I paying \$2000/T for my feed, plus the wire, if THEY can resell service for under a hundred, INCLUDING the wire? I have heard of one "test" where a town was wired locally for 256kb or thereabouts, but the whole operation

was being run off a single T to the 'net. Is that what's happening elsewhere?

Are they forgetting part of the equation or should I start looking for a new line of work?

Thanks for the catharsis,

Terry Ryan
terryr@chesco.com

Terry:

There's some magic math loose in the world at the moment. US West has just announced xDSL in 40 cities for about \$30 per month. I wish them every success with it and hope it is extremely popular. I want a link to my house as well. But what I really wish is that they would let me come in and help with the post mortem and access some of the fatality data after the smoke clears if they really do it. I think there will be a gold mine of information laying in the bottom of the crater.

You're NOT missing something here exactly.

Jack Rickard

◆◆◆

FEED

THE

MASSES

FEED

MASSES

More ISPs Rockw any other te



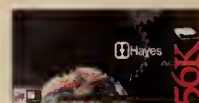
www.diamondmm.com



www.tdksystems.com



www.bestdata.com



www.hayes.com*

Backed by more than 1700 ISPs with over 25 million subscribers, broaden your subscriber base with Rockwell K56 technology. Deploy the technology that communicates to the largest number of Internet users and is V.90 ready for quick and easy upgrades to the new standard, right now.

This new standard eliminates market uncertainties. Now all ISPs, regardless of size, can quickly move to add Rockwell modems to meet user demand and maximize subscriber levels.

COMPAQ

AST
COMPUTER

HP HEWLETT
PACKARD

CONNECT with all K56flex than chnology.



www.bocaresearch.com



www.globalvillage.com



www.zoomtel.com



www.digicomsys.com



www.acer.com/aac

More than 1700 ISPs are already on board.

Rockwell K56flex is the most widely supported 56K technology. Which should actually come as no big surprise, since Rockwell provides more than 70% of the world's Internet and corporate connections. Some of the biggest names on the Net are on board, including America Online, CompuServe Network Services, EarthLink Network Prodigy Internet and The Microsoft Network.

More hardware connections.

Rockwell makes it easy to offer the greatest high-speed connectivity. You'll find Rockwell chips inside 9 of the top 10 modem brands, many with logos featured in this ad. Plus, leading PC manufacturers also employ Rockwell technology.

An open route to the standard.

Rockwell leads the market transition to a new standard with programs in place to ensure interoperability with key central site equipment manufacturers, backbone providers and modem makers.

Satisfy your customers' appetite for speed. Choose the technology that's devouring the Web now while leading the drive to the standard. Choose the technology that's most compatible with the existing subscriber base of V.34 and K56flex modems. Choose Rockwell standard central site equipment.



www.rss.rockwell.com/K56flex

*Hayes Speakerphone and PC Card SKU's only.

IBM

SONY

TOSHIBA

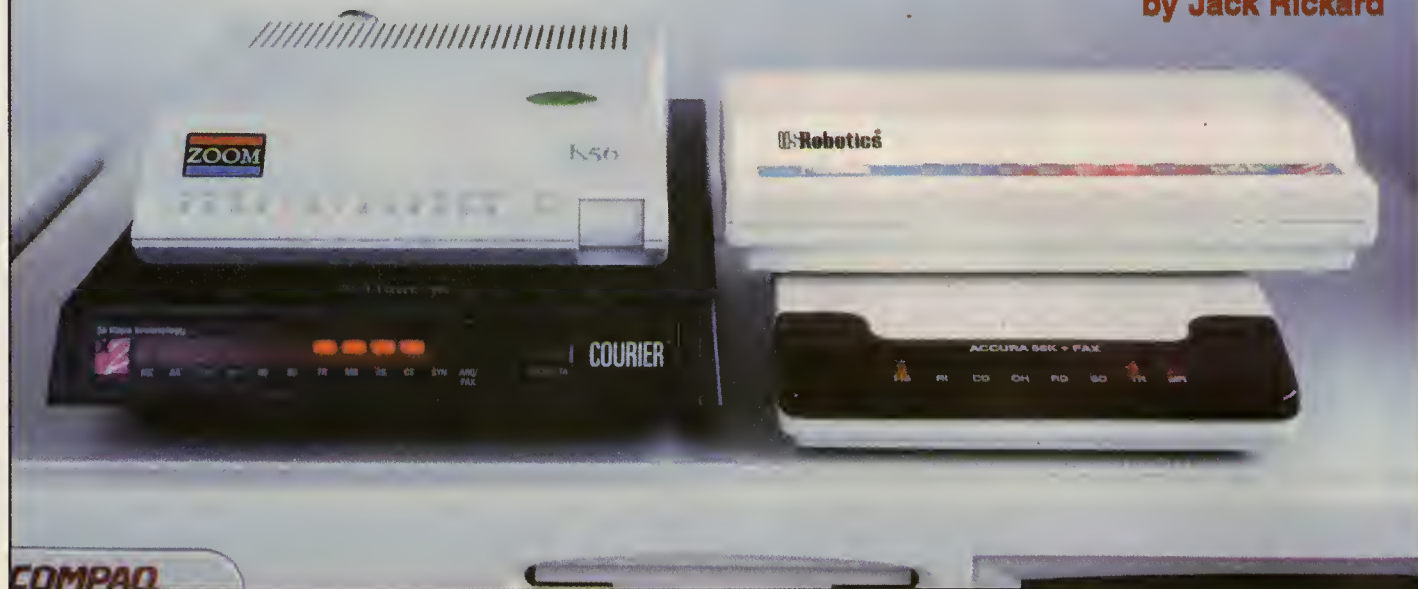


microcom

Shiva

THE 56K MODEM BATTLE

by Jack Rickard



NEW V.90 STANDARD - ODD FINDINGS AND STARTLING RESULTS - AND IT DOES APPEAR TO MATTER

THE BATTLE THUS FAR

For over a year, we have seen an ongoing battle over the next speed increment of dial-up modems. With much ado about xDSL, wireless, and cable modems, this almost seems an obsolete debate. Actually it's not. Over 60 percent of all on the Internet get there from home using a dial-up modem and an ordinary analog telephone line. Almost all the rest get connections from work via dedicated access lines. All ISDN, wireless, xDSL, and cable modems in play today don't amount to a statistical pimple on the face of the network. They get the press, but so far they exhibit no significant numbers.

Part of this is a lack of commitment. It seems a large body of the population simply refuses to devote their lives to the Internet. They would like to be on it. They like e-mail and the Web. But somehow they have been a bit stiff about coughing several hundreds or thousands of dollars per month for the ability to do so. It rather remains to be seen if they will even jump to \$40-\$60 per month for significant improvements in bandwidth. It would seem so, but it is so far a theory.

They do have a basic understanding that a modem or some device will have to be purchased and connected between their computers and the network. And they are quite comfortable with the concept of a telephone line running about \$15 per month. They have become accustomed to an additional \$20 per month in fees to an Internet service provider. That's about \$200 down for a modem and \$35 per month for a line they can use on the Internet without interfering with their normal voice use of

the telephone in their home. And probably about 30 million homes in the United States have gone that far on the Internet.

That's a lot of homes, and a huge market. In some ways, Rockwell Semiconductor Systems made this happen. They have a huge chip manufacturing facility in Newport Beach California capable of stamping out millions of modem chipsets. In late 1993, they introduced a rather ubiquitous V.34 modem chipset allowing modem manufacturers to make modems by putting the chipset in a pretty box and selling them. November 30, 1993, the first Mosaic for Windows program was made available for download from the University of Illinois, Urbana-Champaign. The resulting web explosion changed the Internet forever. And Rockwell's chipsets offered a barely sufficient speed of 28.8 Kbps for a historically trivial price of under \$200. These two factors, a graphical web, and inexpensive and standardized modems of sufficient speed to access it, combined at just the right time to cause an unparalleled growth in the Internet and ultimately critical mass. Rockwell's V.34 chipsets actually enabled dial-up PPP and consequently most of the Internet service provider business. And for a brief period, we truly had commodity modems. No matter what modem you bought, they all worked about the same and at the same speed. The result was very thin margins in the modem business, but ubiquitous availability of modems and easy purchase decisions by end users.

Rockwell prospered from all of this rather nicely. They wound up with a nearly ubiquitous control of the modem world. Over 80 percent of the modem manufacturers used their chipsets.



K56flex Retail Display



Rockwell Semiconductor Systems World Headquarters in Newport Beach

Other chipmakers such as AT&T Paradyne, with their 19,200 bps V.32bis Turbo, were virtually driven from the market.

But there were a few holdouts. US Robotics were among the most successful of these. Rather than stamping out millions of dedicated monolithic chipsets, engineers at US Robotics saw the modem as another kind of computer - used for communicating. They focused on a specialized processor termed a digital signal processor and particularly a rather high-powered DSP from Texas Instruments. DSPs could perform almost any kind of interface to the analog world. They could be put in MIDI devices and used to make music. They could even do video. Like most computers, it simply depended on the software that drove the processor. With the right software, they could be a modem, a fax machine, a voice phone, or even an ISDN terminal adapter. And improvements to a modem became a function of downloading the latest code and updating the modem in software.

By 1996, the way people used modems changed dramatically. Rather than dialing across the country to hundreds or even thousands of different locations on electronic bulletin boards, commercial online services, or directly to each other, almost all modem users migrated to dialing one single telephone number all the time - their local Internet service provider. Once on the network, they "connected" to thousands of places in software using TCP/IP protocol. But the modem remained nailed up to a single location every time and almost always to a local number.

The ISP business changed as well. What started as very much a cottage industry with a few dozen modems grew to be hundreds of modems for many ISPs, largely due to a gruesome ratio of about 10 possible customers per modem. So they gradually began converting to digital trunk circuits between the ISP central site and the telephone company central office. In this way, two copper pairs could be made to carry as many as 24 "telephone lines" - digital channels actually. Today, about 54 percent of ISPs have these digital trunk connections.

Several people noticed that this change altered a lot of the assumptions upon which modem design was based. If the actu-

al "analog" circuit no longer reached end-to-end, but only ran from the telephone central office to the subscriber's home, then half the A/D and D/A converters weren't really there. It might be possible to increase the speed of the connection nearly twice.

In late 1996, US Robotics announced a new modem program they called "x2." At 56 Kbps, it was roughly twice the widely used 28.8 Kbps modem speed. And while the end users remained starchy cost conscious, they DID like the concept of more speed.

This was not an incremental improvement - it was, ahem, x2. And it was very dangerous to the economies of scale Rockwell had achieved in dominating modem chip manufacture. They quickly responded with their K56Plus white paper announcing THEY would be releasing a new 56 Kbps chipset as well - K56Plus. Meanwhile, Lucent Technologies, newly spun off from AT&T, saw an opportunity to get back in the modem chipset game and announced V.flex2. Suddenly, you had to have a 56 Kbps modem plan to be in the business.

The problem was that US Robotics was talking about a January 1997 delivery of the new modems. Given their DSP architecture, they could even update OLD modems. And they came out of the box with all marketing guns blazing. And they were vertical. They offered the central site equipment for the ISP end with their Total Control System, as well as the best selling end user modem with the USR Sportster. They dominated the retail shelf space and channel, and they also had a superb network of some 2,400 value-added resellers, or VARs, handling the higher end equipment.

Rockwell, Lucent Technologies, and also working away at catching up, Motorola joined forces to declare unity against the evil empire. K56Plus and V.flex2 became K56flex. And everyone began announcing everything in a firestorm of misinformation, disinformation, and very, very public relations.

US Robotics didn't actually get much moving out the door in January, but they did have product by the end of February. A few modem manufacturers, pressed wildly by Rockwell, were shipping early versions of Rockwell's chipset in late March.

WHEN VERIO WANTED TO BUILD A NATIONWIDE INTERNET SERVICE NETWORK, THEY WENT TO WWW.BDANIELS.COM.

SELECTED RECENT TRANSACTIONS.

This notice appears as a matter of record only.
August 1996


National Knowledge Networks
A provider of Internet Services.

Equity Investment to fund customer acquisition and infrastructure expansion

from

VERIO

We represented Verio.

 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
August 1996

OnRamp Technologies Inc.
A provider of Internet Services.

Equity Investment to fund customer acquisition and infrastructure expansion

from

VERIO

We represented Verio.

 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
December 1996

Signet Partners Inc.
A provider of Internet Services.

Equity Investment to fund customer acquisition and infrastructure expansion

from

VERIO

We represented Verio.


 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
December 1996

VERIO
Has acquired

NorthWestNet Inc.
An Internet service provider in Washington, Oregon, Idaho, Montana and Alaska.

We provide valuation services to Verio.

 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
March 1997

VERIO
Has acquired

RustNet Inc.
An Internet service provider in Michigan.

We represented Verio.

 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
March 1997

Network Intensive
A provider of Internet Services.

Equity Investment to fund customer acquisition and infrastructure expansion

from

VERIO

We represented Verio.

 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
May 1997


Aimnet Corp.
A California based Internet service provider serving the San Francisco Bay area and Silicon Valley areas.

Equity Investment to fund customer acquisition and infrastructure expansion

from

VERIO

We represented Verio.


 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
May 1997

VERIO
Has acquired

NetDTW
An Internet service provider in Michigan.

We represented Verio.

 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
September 1997

VERIO
Has acquired

Branch Internet Services Inc.
An Internet service provider in Michigan.

We represented Verio.


 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
October 1997

Clark Internet Services Inc.
A provider of Internet services.

Equity investment to fund customer acquisition and infrastructure expansion
from
VERIO


We represented Verio.

 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
October 1997

VERIO
Has acquired
Communiqué Inc.
A Internet service provider serving the New Orleans area.


We represented Verio.

 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
November 1997

VERIO
Has acquired
Global Internet Network Services Inc.
A Internet service provider serving the Midwest.


We represented Verio.

 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
November 1997

VERIO
Has acquired
ATMnet Inc.
A Internet service provider based in San Diego.

We represented Verio.

 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
December 1997

Signet Partners Inc.
A provider of Internet services.

VERIO


We represented Verio.

 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
December 1997

VERIO
Has acquired
PREPnet
A Internet service provider in Pennsylvania.

We represented Verio.


 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
December 1997

National Knowledge Networks
A provider of Internet services.

Second equity investment to fund customer acquisition and infrastructure expansion
from
VERIO


We represented Verio.

 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
December 1997

VERIO
Has acquired
Sesquinet
A Internet service provider in Texas.


We represented Verio.

 **DANIELS & ASSOCIATES**

This notice appears as a matter of record only.
January 1998

VERIO
Has acquired
Internet Servers Inc.
A Internet web hosting services company.

We represented Verio.

 **DANIELS & ASSOCIATES**

DANIELS & ASSOCIATES. YOUR INTERNET INVESTMENT BANK.

When the principals at Verio wanted to build a major Internet Service Network through equity investments in ISPs across the country, they contacted Daniels & Associates. Daniels has the technical expertise, market knowledge and relationships that helped Verio complete several transactions that resulted in a formidable national presence.

Daniels is one of the nation's most active media and telecommunications investment banks. We provide mergers

& acquisitions, corporate finance and financial advisory services to Internet companies. And, we can assist you by structuring and placing debt or equity, gauging the value of your ISP, or identifying strategic partners to accelerate your growth. Visit our website. Get to know us.



Internet: www.bdanields.com

3200 Cherry Creek South Drive, Suite 500, Denver, CO 80209 303/778-5555 711 Fifth Avenue, Suite 405, New York, NY 10022 212/935-5900

Founded in 1958, Daniels & Associates L.P. is a member of the National Association of Securities Dealers Inc. and its professional associates are registered with the NASD. Member SIPC.

And both sides had to simultaneously claim victory, momentum and the most users, about three weeks before anyone had a modem.



Both sides wooed the end users, the ISPs, and the press rather shamelessly. The stakes were huge - several billions in annual revenues that could be swung entirely over this new modem technology - Pulse Code Modulation or PCM.

The non-US Robotics companies formed a "consortium" of companies vowing to never give in to the dark forces from Illinois. In late spring, 3COM announced it was purchasing US Robotics and merging the two companies. Other consortium members crowed gleefully that the wicked witch was dead. 3COM was buying USR, and 3COM was one of the original consortium members. We actually had six modem vendors call the *Boardwatch* offices to cackle hysterically in relief that "it was over." I just shook my head and took a long weekend. Predictably, 3COM had a sudden change of heart about the consortium with its \$3 billion investment in US Robotics. It wasn't over.

The consortium insisted on unity, even when not very unified. We tried to determine the level of interoperability between the Lucent flavor of K56flex and the Rockwell version by talking to the principals involved. We hit a stone wall at Rockwell. The company insisted that the two K56flex implementations were "identical." We attempted to note there were basically three possibilities, interoperable, compliant, and compatible, and get a feel for which was the most likely level of similarity. The Rockwell marketing representative shrilly shrieked that they were IDENTICAL, that it was a contractual agreement that they BE identical and that's all there was to it and we should print it that way. With different chipsets and entirely different code between the two versions, we were left confused, uncomfortable, and confused again.

Faced with a bit of a dilemma for our *Directory of ISPs*, we felt there might be some differences between the Lucent and Rockwell implementations that could affect callers who used one modem with an ISP that used the same or different flavors of chipset. We opted to call them **LucK56flex** and **Rock56 flex**. By July, it proved a sound move. The Rockwell K56flex modems would not achieve a connection at ANY speed with the Lucent-powered central site equipment provided by Livingston. They not only were not identical; they weren't from the same planet. No communication at all.

US Robotics meanwhile had gone after all ends of the problem at once. They bought shelf space and channel anywhere they could and totally dominated retail shelf space all over the country. In some stores, like CompUSA, the Sportster modems took up 70 percent of the modem shelf space in the regular modem display, and then US Robotics had another entire modem display of nothing but Sportsters. By spring they were claiming over 50 percent of all retail modem sales and indeed appeared to have it.

Rockwell basically conceded the retail shelf market, relabeled it the "upgrade modem market" and proudly announced that the REAL entire future of modems would be as built-in devices inside the computers made by Compaq Computer, Gateway, Dell Computer, and so forth. They claimed dominance in this area.

US Robotics alienated a good part of the ISP community with strong-arm tactics to get them onboard the x2 ship. Some ISPs, such as ExecPC in Wisconsin, did indeed gain a bit of market share by jumping onboard early and advertising the service to customers. Most of the K56flex camp among ISPs grumbled and held on - hoping Ascend and Livingston would bail them out. The move to consolidated "remote access servers" was barely a year old, and none wanted to buy it all over again, with a chance of doing it a THIRD time once a standard was issued.

We started attempting to collect real world connection data in the spring. MindSpring had logged some 17,000 x2 calls between March and June and provided us with the connect speed of those calls at the end of the call. Great stuff, we quickly drew up all manners of charts and graphs showing call distribution by speed. Now we just needed the same data from ISPs running K56flex - Livingston and Ascend primarily. We spoke with numerous ISPs that all thought it was a marvelous project. Rockwell and Livingston both ponied up additional suggestions for ISPs once we persuaded them that "same room" lab test data just wasn't going to happen in *Boardwatch*. But none of the ISPs actually ever produced the data. We finally visited a few and found out why. By early fall, most all had had ongoing difficulties keeping the equipment running at all. When they finally did, they found to their dismay, there were no callers.

There had not been sufficient penetration of the end user market to comprise a user base for the K56flex modems. We could find no one with more than a few hundred calls logged. And the problem spread to the US Robotics camp. After an initial flush of enthusiasm over x2 among the very early adopters, the end user community decided somewhat emphatically to



wait for the “standard.” By the end of the year, US Robotics vaunted channel sales were a channel nightmare as the modems came back up the channel unsold. The problem grew to such proportions that there were several articles about magic accounting practices during the merger, and by the end of the year, several shareholder lawsuits were filed.

Meanwhile, the standards battle had mired in something it is supposed to never mire in - intellectual property considerations. US Robotics was touting a “Brent Townsend patent” a preposterously vague patent APPLICATION describing PCM technology. No patent was actually issued, but they filed suit in late summer against Rockwell anyway. Lucent, who actually did have five issued patents that may be applicable to this technology, were relatively quiet. Motorola and Microcom threatened lawsuits against US Robotics, and the move toward a standard since April 1997 had basically accomplished a definition of 20 points of difference and no points of agreement.

When it became apparent that end user sales had pretty much dried up pending release of a real standard, the process moved a bit more quickly. In a December 4 meeting in Orlando, ITU Study Group 16 Question 23 magically decided that Motorola’s spectral shaping techniques were very cool, and US Robotics encoding techniques were just the thing to have, and by January 20, even before blessing in Geneva, US Robotics and Lucent were issuing joint press releases announcing interoperability testing of the new V.PCM standard modems. Actually the new standard is officially termed V.90.

Basically, aside from some very enthusiastic very early adopters, most of the power users who would be inclined to move to 56 Kbps were also around for the V.FC to V.34 fiasco just a few years ago. Despite endless promises of upgrades, the vendors by and large reneged, and many of those users wound up buying a modem twice in about a year. And there was a hideous amount of confusion among ISP help desks as they sought to sort out callers among V.FC and V.34. The legacy of that transition may run much stronger than at first thought. End users do seem to want speed. They don’t necessarily want to join a “modem of the month” club.

SERIAL KILLER - IT HAD NOTHING TO DO WITH MODEM TESTING

So after introducing the 56 Kbps story with a big bang in the January and March 1997 issues, we found ourselves rather sitting patiently on our thumbs for most of the year. In collecting actual connection data from ISPs, things were a little one-sided as x2 data became available, and K56flex data not. In early and mid-summer, the compatibility problems with K56flex surfaced, and we were again delayed from learning anything meaningful. Other publications issued “lab tests” which we read faithfully and discarded as absurd on contact. Ascend, Rockwell, and US Robotics regularly released press releases noting that they had “won” all around. Ascend actually crowed about having 1.5 million ports up before any ports apparently worked at all. A vaguely annoying period of life almost devoid of any hard info.

Meanwhile, we encountered some success last summer with our backbone measurement project with Keynote Systems. But a recurring question involved dial-up access to the Internet. We received hundreds of requests to rate ISPs based on dial-up “availability” and busy signal ratios.



End users are shuttling from ISP to ISP with little in the way of loyalty and despite the inconveniences of changing their e-mail address. And little of this has much to do with anything other than busy signals and a minor snit over a small number of ISPs who seem to have some difficulty with the moral, ethical, and legal vagaries surrounding the concept of offering “unlimited” access in their advertising materials and then conveniently and unilaterally redefining the term “unlimited” to suit themselves. This latter problem is not only a minority contributor toward this customer churn, but is likely self-correcting pending the advent of about one consecutive court case.

Far more on the minds of customers is the concept of busy signals. AOL rather brought this to a head with their sudden move into flat-rate pricing last year with about 30 customers per modem. The result was no AOL after 4 p.m. in many areas of the country. Customers not only did not get unlimited access, in many metropolitan areas, they couldn’t get on at all until after 9:30 p.m. The company has deployed hundreds of thousands of modems and has also worked out a more long-term solution as part of a deal with UUNET. So things are improving for AOL, but busy signals remain much on the mind of end users.

Hundreds of thousands of AOL users jumped ship to the slightly more complex, if economical, world of smaller ISPs. Many found happy homes. But others were startled to learn there were busy signals with other ISPs as well.

In looking at what an end user sees, with much of the software there is not actually an indication of a busy signal. They don’t get connected. It might be a busy signal, it might be a no-answer, and it might be that the two modems simply failed to negotiate the initial handshake. Some do this better than others. Some ISPs actually guarantee no busy signals. And indeed they almost never issue one. The dial hunt group simply rolls over to a couple of lines with no modems on them at all and the call just rings with no answer. In any event, the way Windows 95 handles the calls, the end-users don’t really get much of an indication of just what did happen - they just don’t get connected.

So we hatched a plot to see just what the situation was with call completion rates to Internet service providers. While not unthinkable, the task of determining how to measure 4,500 Internet service providers will give pause. We decided in the initial round to limit the testing to those ISPs that provide dial-up access on a “national” basis - which of course could

**DOES
YOUR
NETWORK
MOVE
INFORMATION
LIKE
THIS?**

WHERE

As a Service Provider, you want to maximize services. And minimize costs. Bay Networks access products make it happen. An example. You have a surge in x2™ and K56™ Flex traffic. Instead of buying solutions from two vendors, Bay Networks Adapteon™ allows calls in both protocols to flow into your network. That's why some of the most successful Service Providers depend on Bay Networks. Like Prodigy® and Concentric Network.™ To learn more, call us at 1-800-8-BAYNET. And find out how Bay can help make your information flow.

Get the rest of the story. Visit www.baynetworks.com/15

COME SEE US AT ISPCON BOOTH # 226



Bay Networks

Where Information Flows.™



BAY NETWORKS, INFORMATION FLOWS.

Adaptive Networking: Switching/Routing, Access, Network Management, IP Services

©1998 Bay Networks, Inc. All rights reserved. Bay Networks is a registered trademark and Where Information Flows and Adapteen are trademarks of Bay Networks, Inc. x2 and K56 Flex are trademarks of their respective holders. Prodigy is a registered trademark of Prodigy Services Corporation. Concentric Network is a trademark of Concentric Network Corporation.



again mean anything. So we used the list of ISPs we define as “national” in scope in the *Directory of Internet Service Providers*. That is, ISPs who do offer some dial-up point-of-presence in at least 25 area codes or more. This gets us down to 89 national dial-up ISPs for the *Winter '98 Directory*.

For each ISP, we somewhat randomly selected a single POP in each of five different cities - five geographically different telephone numbers per ISP. The cities vary rather widely as not all ISPs were in all cities of course. We heavily favored a Denver POP if they had one as one of the POPs since the more POPs we could get in Denver, the more calls could be made without the nickel charge for the call. But no more than one Denver POP of the five POPs per ISP, of course.

The result was a database of 89 providers and 445 POPs. Even this was a little more complicated than it looks. Many “national” ISPs actually lease POPs from larger providers who wholesale the service, such as UUNET, GTE/BBN, and MCI to name three apparently popular ones. Microsoft Network, for example, leases all their POPs from UUNET. It's further complicated by the fact that a number of these ISPs actually lease it from more than one such provider. MindSpring, for example, have POPs of their own in the Southeast, and also lease POPs from PSINet, AND GTE/BBN. The result was that there were actually only 323 discrete phone numbers among the 445 listed POPs. Indeed, one telephone number in Winter Park, Florida, is listed by eight different Internet service providers as “their” POP.

We set up what essentially is a dialing engine. It consists of the database primarily, with three computers and five modems. Two of the computers are new 300 MHz Compaq Deskpro's running NT Workstation with two 115 Kbps serial ports each and the third was a 200 MHz Toshiba Infinia with a single 115 Kbps serial port.

After looking around for several months for an off-the-shelf software program that would do the task, I finally gave up and wrote one myself. It basically dials ports sequentially out of a common database, logs the result of the call to the database, and moves to the next call. It is a little more advanced than that in that it also helps calculate some averages and running totals, and accounts for time zone differences. We wanted to dial these services during peak times, and to keep the necessary number of calls for meaningful results to a minimum, over a fairly narrow time band. The program dials the POPs from 5:00 p.m. to 9:00 p.m. in the time local to the POP itself. So it begins dialing each afternoon at 3:00 p.m. to the East Coast POPs, adds Central Time Zone POPs at 4:00, then Mountain, then Pacific. It stops dialing East Coast POPs at 7:00 p.m. here, 9:00 Eastern, and so forth across the country. The result is that all POPs are dialed between 5:00 p.m. and 9:00 p.m. local time. All calls are made from our office in Littleton, Colorado. Our office is 12,700 feet from the US West's Columbine central office switch, over primarily 26 gage wire. These are not terribly good lines or terribly bad lines. We think they are about the “average” or typical telephone line. Sprint is our long-distance carrier. I can't prove it, but over time we have developed an internal bias toward this long-distance carrier with regard to consistent connection quality across the country.

With the x2/K56flex thing going on, we didn't really want any of the services disadvantaged by the modem we used. So we set it up with a couple of US Robotics modems, and a variety of Hayes Accura, Zoom, Diamond Supra, and Motorola modems. And where we noted a port as K56flex or x2 flavored, we would allow ONLY the appropriate modem to dial that entry. Since all five ports dialed out of the same database, this was quite easy to do. It was a bit complicated by the fact that the US Robotics Courier and Sportster modems, despite all our efforts, simply dialed faster than the Rockwell chip-based modems.

ISP POP DIAL TEST PROGRAM

ISP POP DIALER

Manual Dial Current time 3:45:00 PM Autodial Autodialing until 10:00:00 PM

Port Call 752... Stop

Modem ATDT1619-849-1311 CONNECT 45333/ARQ/x2/LAPM/V42BIS Reset

Terminal NO CARRIER Reset All

Scheduler

Idle...

146 IBM 619-849-1311

San Diego pacific x2

First Dialed 12/30/97 6:41:02 PM Attempts 436

Last Dialed 2/3/98 1:27:22 PM Connects 429

% Completion 98.39 Busies 1

Avg Con Speed 46763.20 NoAnswer 6

Current Speed 45333 US ROBOTICS

ATDT1619-849-1311 Only ☐

CONNECT 45333/ARQ/x2/LAPM/V42BIS X2 ☒

K56flex ☐

ISP POP DIAL TEST PROGRAM

ISP POP DIALER

Manual Dial Current time 3:45:00 PM Autodial Autodialing until 10:00:00 PM

Port Call 746... Stop

Modem 7=55 OK ATDT1202-478-0604 CONNECT 32000 Reset

Terminal OK Reset All

Scheduler OK

Idle...

102 Epoch 202-478-0604

Washington, DC eastern K56flex

First Dialed 12/30/97 3:57:30 PM Attempts 250

Last Dialed 2/3/98 1:31:47 PM Connects 225

% Completion 90 Busies 0

Avg Con Speed 32881.77 NoAnswer 25

Current Speed 32000 ZOOM

ATDT1202-478-0604 Only ☐

CONNECT 32000 X2 ☐

K56flex ☒

They could crank more calls. So for most of the test, we had three Rockwell powered modems running and two US Robotics modems running to achieve some rough dialing parity. X2 ports are only dialed by US Robotics modems. K56flex ports can be dialed by Motorola, Supra, Zoom or Hayes modems. All other ports can be dialed by the first modem to reach them in the database.

The result was a dialing engine that could crank out about 6,000 test calls per evening, starting at 3:00 p.m. and ending at 10:00 p.m. here in Denver. By the end of January, this engine had dialed well over 140,000 telephone calls to the 89 ISPs - about 300 calls per POP on average. This provided us not only a large base of fascinating data on call completion rates, but also a number of surprises.

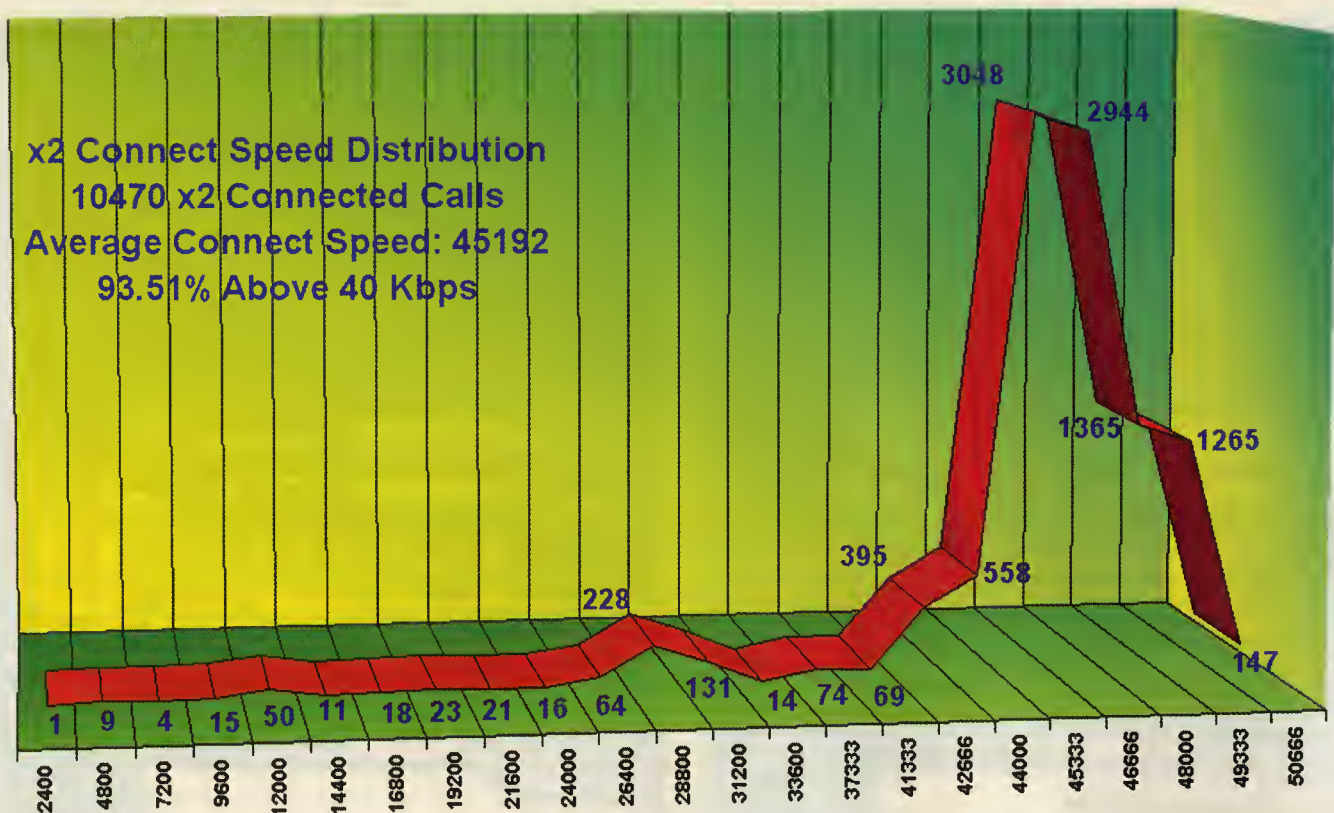
Most of these revolved around what we learned about long-distance dialing and the 56K modems. We had assumed that connect speed would be a bit secondary because by far the majority of calls made were dialed long-distance. And despite the fact that the long-distance network is almost entirely digital, there are conversions along the way. We assumed 56K connections would be much better locally. Nyet. In fact, the one consistently best POP we found belonged to IBM, it's an x2 port, and it is located in San Diego. We get a 98.6 percent call completion, and we get a 50,666 connection EVERY SINGLE TIME.

This was a bit counterintuitive, though demonstrably true. Across the board, there is actually a slight advantage to dialing long distance. Hardly anyone has looked at it since there is absolutely no demand for long-distance on-the-meter connections to the Internet. But it appears to be true. John Powell of US Robotics suggested that this has to do with the digital packet assembler/dissamblers at the local central office switch. At the central office CODEC (coder/decoder - essential-

ly an analog/digital converter), they normally limit the amplitude of the signal with what is generically termed a "pad." It appears that local calls most often go through a 3 dB pad and long-distance calls go through a 6dB pad. Now for voice, the 3 dB pad is actually better and offers a lower level of signal attenuation. But to accomplish this requires more complex circuitry than the 6dB pad. The 6dB pad while not normally thought of as "good as" the 3dB pad, is simpler in design and offers a clearer path for the kind of digital signals that transit the long-distance network. The result is that you can get a better connection long-distance in some instances than you can locally. And navigating through the various pad configurations available is a bit tricky. You're basically attempting to design one modem to cover every eventuality in an extremely variable telephone network.

Any path through the telephone networks comprises a bewildering array of mu-law codecs, A-law codecs, and a variable number of rob bits. The basic digital path is a 64 Kbps channel, and the basic T-1 is 24 such channels comprising 8 bit data and an 8 KHz sampling rate. But some systems use 1 bit to form a supervisory channel allowing the transmission of call data and other supervisory information. Linking these serially, you can have losses due to 1 rob bit in the path, 2 rob bits, or even 3 or more rob bits - each decreasing the total available digital bandwidth available. Mapping a modem constellation around these various configurations is near art form.

The other stunning surprise was the difference in the modems. We have assumed for a year that the Rockwell K56flex and the US Robotics x2 modems were peer technologies and that eventually they would interoperate anyway. We noted a number of previous "lab tests" sponsored by reputable publications that would indicate parity and even a slight edge to the K56flex camp. Some ten years in reporting online technologies has



made us extremely skeptical of lab tests using telephone system simulator boxes. Results almost never map even broadly to real world telephone network experiences. So we've held comment for probably too long. But we assumed the differences between the two technologies would be minimal in any event.

Our call completion tests contained a stunner. K56flex and x2 weren't even close. The good news is you can regularly achieve mid-forties and as high as 50,666 connections with the new modems. The bad news is you can really only do it with one of them.

OVERALL

We've heard from many users who note that since they rarely get a 28.8 Kbps connection, the likelihood of getting much benefit from a 56 Kbps modem is pretty small. Actually, we think they ought to consider updating their modems. The dirty little secret in the modem industry is that there have been many improvements to the V.34 code over the years - virtually none of it announced at all to minimize the headaches of users wanting to "upgrade" to the latest code. And in truth, rarely was there a persuasive improvement from any one version to the next. But over the past four years, there have been a lot of versions. And cumulatively they have improved modem performance dramatically. A V.34 modem off the shelf today will be much better in operation than a V.34 modem purchased a few years ago. And most users simply do not upgrade.

We started the dialing program in late December 1997. Despite having literally a storage room full of modems of every stripe, color, speed, and flavor, we bought new modems off the shelf specifically for the test. We checked their current firmware revisions to the latest that are publicly available. And we were surprised by the performance across the board.

Across more than 140,000 calls (so far) to 323 different telephone numbers to cities geographically located all across the continental United States, we averaged a call completion rate of 86.21 percent. The average reported connect speed was 30,241bps.

X2 - BETTER THAN EXPECTED

Of the 323 tested ports scattered across the land, some 42 ports or about 13 percent were x2 capable. Notable among these was both IBM and MCI. MCI also wholesales ports out to other ISPs.

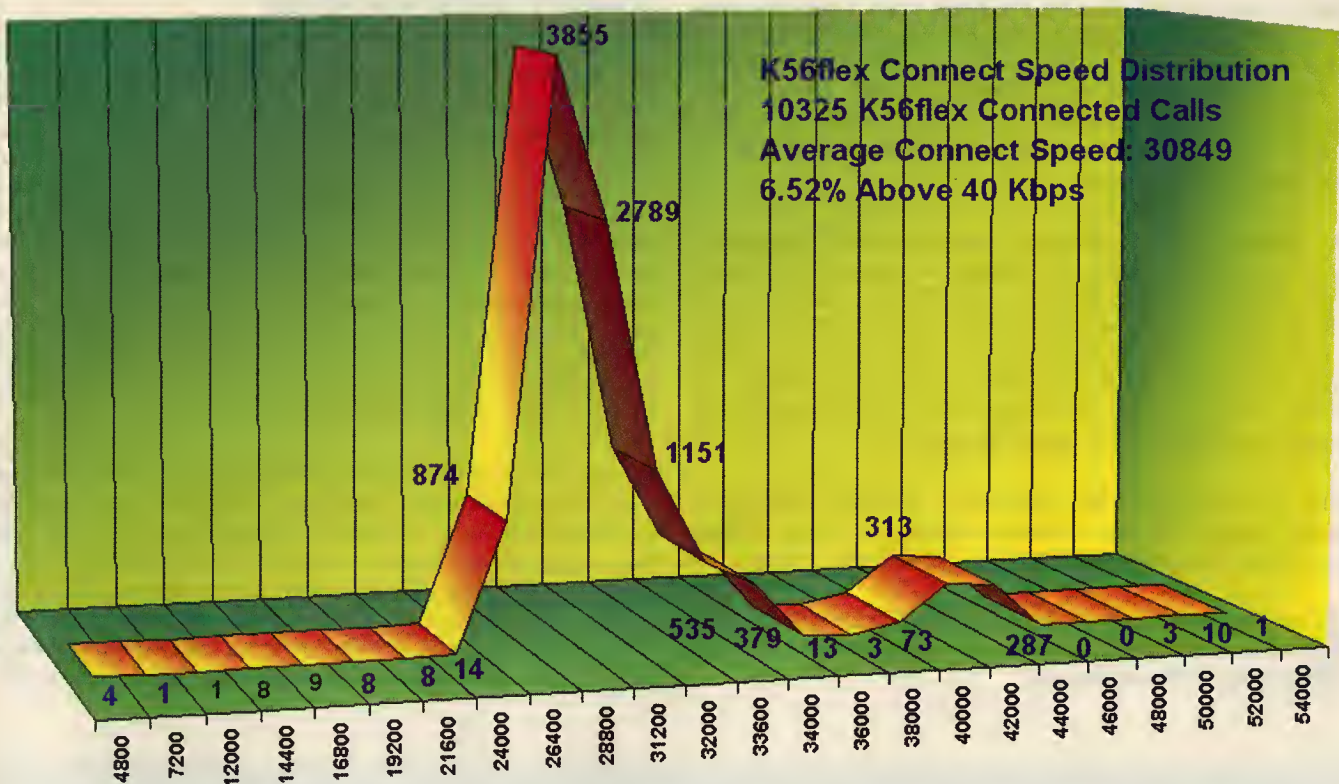
On 11,592 x2 call attempts, 10,484 were completed for a call completion rate of 90.4 percent. On calls from a US Robotics modem to an x2 capable port, we noted an average connect speed of 45,192 bps, with a maximum connect rate of 50,666 bps achieved by about 2.8 percent of all connected calls. And nearly 94 percent of all connected calls to x2 ports were at 40 Kbps or over.

The accompanying chart diagrams actual x2 call distribution from 2,400 bps to 50,666 bps.

K56FLEX - DISAPPOINTING RESULTS

Of the 323 ports dialed, 61 ports were K56flex flavored for some 18.88 percent of the total.

The average connect speed reported was a disappointing 30,849 bps - essentially V.34 speeds and only slightly higher than the average for all ports. A maximum speed of 54,000 bps was achieved by precisely one call to a local GTE port. But the call completion rate was extremely disappointing at 79 percent



of calls to K56flex ports completed. And an underwhelming 6.52 percent of all completed K56 calls were 40 Kbps or better.

This not only showed up as a lower average connect speed for the Internet service providers using K56flex technology, it virtually posed a call completion "penalty" to those ISPs as well. We watched this quite closely and even upped the timeout on the software from 30 seconds to a nearly-all-afternoon 40 seconds and finally to 60 seconds to allow the flexers more time to connect. They would beep. They would sqwawk. They whistled, chimed, bonged, honked, and squealed. But too often, rather than falling back to V.34 and getting on with it, they just never did arrive at any conclusion at all. No connection about one call out of five. The results were identical between the Motorola, the Diamond Supra, Zoom, and the Hayes Accura. We must assume it is the Rockwell chipset.

The accompanying chart diagrams actual K56flex call distribution from 48,00 bps to 54,000 bps. It varies little around the V.34 norm.

WHYS AND WHEREFORES

Why the disparity between these two modem technologies? We're not sure. But we have a couple of theories of course. US Robotics got out the gate pretty early and with a chipset designed to be flashRAM upgradeable. To some degree, they pioneered the concept of a digital signal processor (DSP) code driven from upgradeable flashRAM. This will actually pay off rather richly here shortly. Any Courier modem manufactured in the last FOUR YEARS will be upgradeable to the new V.90 standard with no hardware at all. And all Sportsters manufactured after about October 1996 will be as well.

Further, they recognized fairly early on that there was no such thing as a "telephone network" in the United States, much less worldwide. There are lots of networks. And they vary tremendously.

To address this, they used an old trick rather well. They set up a BBS. They equipped 1,400 beta testers with the modem at a consequently wide disparity of locations. These test sites ran a software test suite that dialed the BBS and ran through a series of tests. At the end of the test, the modem uploaded a simple ASCII text file containing the performance results for each test and the software version used. These results were sucked into an SQL database and summed, accumulated, plotted, averaged, and spewed forth with some alacrity.

The result was that US Robotics engineers could distribute a new version of code one day, and come in the next morning to see the results in large-scale printouts that indicated who got better, who got worse, and who the new version had broken entirely. An interactive national test bench for x2 code. They had a meter to map digital line impairments. They issued hundreds of new versions that never saw the light of day outside of this test group to try to map the best operation across the widest variety of digital networks available. They even did this internationally to countries like Korea with truly crippled telephone networks. And they worked directly with a lot of ISPs along the way as well.

Rockwell Semiconductor Systems, on the other hand doesn't manufacture modems. They make chipsets. They issued a K56flex standard in response to US Robotics x2 initiative. They initially announced four different chipsets, two each for client and server with the first one entirely in the monolithic chip set model that wasn't upgradeable at all. About 250,000 of these non-upgradeable modems got onto the street and have

caused no end of headaches for Rockwell since. Despite a business model based on upgrades via new chips, Rockwell has at this point given up the non-upgradeable modem and their current chipsets are upgradeable. But their client modem manufacturers are almost reduced to putting the chipsets into pretty boxes. As a consequence, they're only loosely coupled to the design and testing process.

Both companies raced to claim the largest number of supporting ISPs. Basically, those already sporting Ascend and Livingston equipment stayed in the K56flex camp. Those already owning US Robotics Total Control systems went with x2. The few ISPs who did upgrade from analog systems to one of the newer digital systems went with x2. The x2 market share among ISPs was very low, and appears to have risen a bit, though Ascend and Livingston still dominate it rather thoroughly.

Hayes Microcomputer, Bay Networks, and Microcom have basically hedged the bet - offering support for both modem technologies. They may look back on this as a good move.

Everyone assumed the modems were basically identical in performance. No one credible bothered to test outside the lab. Unfortunately, that includes us.

CONNECT SPEED REPORTING

Our objective with the testing was call completion rates among ISPs. The modem results were not only dramatically one-sided, but rather fell into our lap by accident. So we did something we just don't normally do - we spilled the beans. By the end of the first week in January, we sent the entire database to US Robotics, Hayes Microcomputer Products, and Rockwell Semiconductor Systems for their independent analysis with a plea for help in finding out what we had done wrong with our methodology and/or the operation of these modems to create such a disparity. It did not look just statistically significant, it really looked like a major foul-up on our end. We expected some embarrassingly obvious rebuke about a modem initialization string or something similar.

We tried swapping between computers, swapping between ports on the computers, we even at one point determined that although they were "identical" telephone lines into our office there must be some subtle difference between them and we started rotating telephone lines between modems. John Powell of US Robotics not only shared a lot of information about how they test modems and what they've run into, he almost crossed the line into pointing us toward some things that could be

Sportster X2 Reported Connect Speed vs. File Transfer Throughput

CALL	REPORTED CONNECT SPEED	SECONDS	FILE SIZE	THROUGHPUT	RATIO
1	50,666	175	813,080	4,646.17	91.70
2	50,666	157	813,080	5,178.85	102.22
3	48,000	213	813,080	3,817.28	79.53
4	50,666	187	813,080	4,348.02	85.82
5	50,666	182	813,080	4,467.47	88.17
6	50,666	165	813,080	4,927.76	97.26
7	50,666	161	813,080	5,050.19	99.68
8	50,666	160	813,080	5,081.75	100.30
9	50,666	173	813,080	4,699.88	92.76
10	50,666	161	813,080	5,050.19	99.68
AVG	50,399.4	173.4		4,726.756	93.711

Hayes Accura Reported Connect Speed vs. File Transfer Throughput

CALL	REPORTED CONNECT SPEED	SECONDS	FILE SIZE	THROUGHPUT	RATIO
1	36,000	232	813,080	3,504.66	97.35
2	31,200	256	813,080	3,176.09	101.80
3	34,000	241	813,080	3,373.78	99.23
4	34,000	239	813,080	3,402.01	100.06
5	33,600	241	813,080	3,373.78	100.41
6	40,000	216	813,080	3,764.26	94.11
7	31,200	253	813,080	3,213.75	103.00
8	34,000	237	813,080	3,430.72	100.90
9	36,000	230	813,080	3,535.13	98.20
10	34,000	238	813,080	3,416.30	100.48
AVG	34,400	238.3		3,419.0474	99.554

Fight
fire
with
fire.

firehunter

The management challenges that face the ISP environment are anything but minor. And as competition heats up, it's only going to get more intense. Fortunately, there's HP OpenView Firehunter.

Firehunter is an intelligent, out-of-the-box solution built specifically for Internet Service Providers. It's an Internet service management solution that delivers the right information to the right people quickly and easily. And it will ignite the quality of your Internet services and ultimately spark higher degrees of operational efficiency.

With Firehunter, *Operations* can troubleshoot Internet service problems quickly. *Customer Service* can deliver the quality service that minimizes costs and improves your customer's satisfaction. And *Planners* can use existing resources more efficiently—and perform capacity planning more accurately—using flexible reporting capabilities. What's it all add up to? The kind of business growth that sets your organization on fire. HP Firehunter. It's hot. It's new. And it's only from Hewlett-Packard. Use it and blaze your way to success.

HP OPENVIEW FIREHUNTER

www.hp.com/go/isp_management



hurting the K56flex side. Nothing verified out nor could we get any improvement with anything we tried locally.

Both Hayes and Rockwell assured us we were doing something wrong and that they had tons of data proving that their modems were great. They threatened to fly people out. They warned us repeatedly that we needed to be accurate. But we received no useful suggestions, data, or otherwise useful information. We were told point blank that US Robotics was lying. We had to go over it about three times before they finally understood that WE were doing the testing, we weren't lying, and US Robotics was as much a potential victim of our evil plots as they were.

Both Hayes and Rockwell then assured us that US Robotics was lying with regards to the reported connect speed and that basically, US Robotics indicated a preposterously high connect speed initially, and then fell back to actual throughputs much lower. The K56 flex, on the other hand, would report a "low" initial connect speed and then train up.

This didn't sound right, but we did waste a couple of days testing it anyway - on a much smaller scale. We got accounts at two local ISPs, one with K56flex and one with x2 ports. We had them mount a single 813,080-byte file on a local hard drive on their system. And we called and downloaded the file - timing the actual transfer. The claim has some merit - just not enough by an order of magnitude to support the observed performance differences.

The results are interesting. The US Robotics modems DID indeed seem to deliver slightly lower throughputs than indicated by the reported connect speed. Over 10 calls, the average reported speed was 50,399 bps and the actual timed throughput was some 4,727 characters per second (cps) - about 94 percent of what was indicated by the connect speed. Not terribly alarming, but notable. The USR modems did indeed retrain to different speeds. But not always. One 50.666 Kbps call appears to have moved UP to 51.78 Kbps and three of the 10 calls stayed right at 50.666 Kbps. This looks like a modem doing its job.

The Hayes Accura reported almost exactly what it could achieve in throughput over several minutes of transmitting long files. Unfortunately, this was a much more modest 3,419 cps. While the connect speed reporting accuracy issue appears real, it is entirely out of scale with the actual performance differences - in other words lost in the noise. We observed over 13

Kbps difference between the modems on these local tests - even greater than the 10 Kbps disparity noted across the entire database.

Rockwell sent a senior engineer to our site for two days. He noted that he could find nothing wrong with our methodology per se, or modem firmware versions. He did indicate that the modems were able to negotiate a K56flex session on paths with 0 or 1 rob bit, but never on paths with 2 or 3 rob bits, falling back to a V.34 connection in that event. He did note that this was not per design and did not yet have an explanation for it.

V.90 STANDARD IMPLICATIONS

The International Telecommunications Union (ITU) Study Group 16 Question 23 committee met February 5th and 6th to bless a compromise agreement on the V.90 modem standard. The group basically agreed to the compromises this past December 4 in Orlando. Final adoption is set for September, but Lucent and 3COM had announced interoperability testing of new V.90 code before the meeting was even held in a joint press release on January 20.

The implications for V.90 are more of the same. The compromise of the 20 points of contention broadly involved adoption of Motorola's spectral shaping techniques and US Robotics encoding or constellation shell mapping. K56flex may incur some slight improvement in dealing with digital networks from that, and the US Robotics modems may pick up a bit more ability to deal with truly gruesome local analog lines.

But we're persuaded that most of the differences will remain proprietary. Basically, V.90 specifies how the modems will talk to each other to make complex decisions about how to treat the variety of digital networks across the land. And this is almost entirely client modem driven.

Broadly, once the two modems have established that they are V.90 modems and can do this trick, the client modem uploads a Digital Impairment Learning Descriptor (DILD). This basically tells the server modem what type of test tone to transmit over the network. The server modem dutifully transmits the tone, and the client modem compares the received tone to its internal reference tone. The client modem uses this comparison to calculate the best data point constellation to use and notifies the server precisely what constellation configuration to use in transmitting data downstream. The upstream link is still the 33.6 Kbps V.34 at best.



remnants of Java 1.1 code scattered throughout. This is because I developed it in Java 1.1 at first, then realized that my browser wouldn't have anything to do with it, and had to back-port it to 1.0. Like I said, this month has been an exercise in humility for me.

The application starts out with the usual incantations to the import deities, asking them to lend us the classes that we will need. Then we follow with a class declaration for the applet, `GetColorName`, and a couple of variable declarations. We declare the `Button` and the `Choice` components at the top of the applet because they are user interface objects that will be initiated in the `init` method and then used in some other method. By declaring at the top of the applet, we keep them visible to all the methods. The color strings that follow the `Button` and `Choice` declarations don't really need to be up at the top of the applet class, but I put them there to keep them from cluttering up one of the smaller methods down below. Each color string contains the RGB (Red-Green-Blue) string we will need to specify the color, in HTML, to the web server later.

After the declarations, we define an `init` method:

```
public void init(){
```

The `init` method is called when the applet is loaded by the browser. It is where you usually set up all of the user interface components, or call a method that does. The first thing I do is select a layout manger, which is used to place the user

interface components in the window. If you stretch or shrink the window, the layout manager moves the components around to fit. I chose a `GridBagLayout` manager since it gives a lot of flexibility and the results look reasonable.

```
GridBagLayout MyLayout = new
GridBagLayout();
setLayout(MyLayout);
```

To position a component within a `GridBagLayout`, you specify a series of variables in an object called a `GridBagConstraints`. I will need one, so I create it here.

```
GridBagConstraints gbconstr =
new GridBagConstraints();
```

Now I can start to add components to the applet. First I create a text label.

```
Label PickLabel = new
Label("Pick a Color!");
PickLabel.setFont(new Font
("BigSans", Font.PLAIN, 36));
```

Then I set up the constraints that I want to govern layout of the label

```
// The label will start in the
upper left or (0,0).
gbconstr.gridx=0;
gbconstr.gridy=0;
// It will be eight columns
wide and two rows high.
gbconstr.gridwidth=8;gbconstr.g
ridheight=2;
// I don't want the label to
change size if the
// window expands or shrinks.
gbconstr.fill=gbconstr.NONE;
// I want the text centered in
the space.
```

```
gbconstr.anchor=gbconstr.CENTER
;
// I want 10 pixels of padding
above and below the text.
gbconstr.ipady=10;
```

Then I tell the layout manager to use these constraints for the text label and I add the label to the applet.

```
MyLayout.setConstraints(PickLab
el,gbconstr);
add(PickLabel);
```

We go through a similar process for the color menu that we want. We create the menu object.

```
ColorChooser = new Choice();
Then add the menu items.
ColorChooser.addItem("Red");
ColorChooser.addItem("Orange");
ColorChooser.addItem("Yellow");
ColorChooser.addItem("Green");
ColorChooser.addItem("Blue");
ColorChooser.addItem("Violet");
ColorChooser.setFont(new Font
("MediumSans", Font.PLAIN, 18));
```

Then we specify the layout constraints.

```
gbconstr.gridx=3;
gbconstr.gridy=3;
gbconstr.gridwidth=4;gbconstr.g
ridheight=1;
gbconstr.insets.left=40;
gbconstr.insets.top=20;
```

And add the menu to the applet.

```
MyLayout.setConstraints(ColorCh
ooser,gbconstr);
add(ColorChooser);
```

Then we add a button to the applet. The button will be used by the user to say that they are done with the applet.

Boardwatch on the Web!



www.boardwatch.com

Boardwatch Web site boasts the latest information for Internet service providers.

- Access our publications online.
- Subscribe to *Boardwatch Magazine*.
- Purchase the *Internet Service Provider Directory*.
- Browse back issues.

ISPCON Fall '98.

The world's largest convention for the Internet service providers.
September 28 - October 1, 1998
San Jose Convention Center.



Subscriptions and Information:
800.933.6038

```
DoSomethingButton = new
Button("I Picked one!");
gbconstr.gridx=4;
gbconstr.gridy=4;
gbconstr.gridwidth=2;gbconstr.g
ridheight=1;
MyLayout.setConstraints(DoSomet
hingButton, gbconstr);
add(DoSomethingButton);
```

This is all we need to do to initialize the applet. Now the applet will sit there and wait for the user to do something. The user will presumably pick a color from the menu, then press the button. When the user presses the button, the applet will look for a method called `action`. Java will pass that method will pass an event object.

Now we need to write the *action* method. The method needs to take an Event and an Object argument and then returns a boolean.

```
public boolean action (Event
someEvent, Object arg) {
```

However, we don't care about most events. We really only care about the button-related events:

```
if (someEvent.target ==
DoSomethingButton) {
```

If we have a Button event, we take a look at the menu and see what the selected color was.

```
String colorString =
ColorChooser.getSelectedColor();
```

Once we get the color, we pass it to `MakeWebPage`, which will return a URL that is fed to our browser.

```
try{
getAppletContext().showDocument
(MakeWebPage(colorString));
}
catch (Exception e){
System.out.println("Oh! My! An
exception! " + e.toString());
};
```

If it were a Button event, we would use the boolean return value of `true` to say to the system that we have handled the event. If not, then we return `false` to say that we didn't handle it.

```
return true; }
return false; }That is all that
was required for the action method.
```

We have made the applet interface and we have gotten the input from the user. All we need to do now is build the web page. Easier said than done. We are building a

web page, so the natural thing for us to return is the URL for that web page. We need to say so in the method declaration.

```
public URL MakeWebPage(String
colorString) throws Exception {
URL NewWebPage;
```

Since this applet could, conceivably, be used by thousands of people at the same time, we don't want the applets colliding with in the file system. A cheap and sleazy way to avoid the collisions is with file names that have a random element.

```
int i = (int)(1000 *
Math.random());
String FileName = "web" + i +
".html";
```

Before we create the file, let's decide what colors we will use for the web page.

```
String BackgroundColor = Black;
String TextColor = White;
if (colorString == "Red") {
BackgroundColor = Yellow;
TextColor = Violet; }
```

And so on, with one if statement for each item in the color menu. Later we will use the strings in `BackgroundColor` and `TextColor` to build the web page.

Now we open a file on the server. If I understand correctly, the following code should work if the web server permissions are set up correctly. First, build a target URL.

```
URL dynURL = new URL(
getCodeBase(),FileName);
```

From that URL, build a `URLConnection`, so you can write to it. Ordinary URL objects are read only. `URLConnection` objects are more flexible.

```
URLConnection dynURLConnection =
dynURL.openConnection();
```

Tell the `URLConnection` that you want to do output, then connect with the URL's web server.

```
dynURLConnection.setDoOutput(true);
dynURLConnection.connect();
```

But, sigh, my applet errors out during the `connect()` method call. The exception that I get from the failure (*java.io.IOException*) is not at all helpful. I suspect that the web server doesn't want me in its business. Still it is supposed to work — I will try to figure it out for the next month's column. Let's continue, pretending that it did work.

If the connect had worked, I would then make an `OutputStream` from the URL-

Connection and then wrap the `OutputStream` with `PrintStream` in order to get some helpful formatting functions.

```
OutputStream WebPageOut =
dynURLConnection.getOutputStream();
PrintStream WebPagePrint = new
PrintStream( WebPageOut);
```

Then, we have a series of simple commands to write the HTML out.

```
WebPagePrint.println(
"<HTML>");
```

And so on — see the sidebar *GetColorName.java* for details.

Then we close the `OutputStream` and return the URL.

```
WebPageOut.close();
NewWebPage = new URL(
getCodeBase(),FileName);
return NewWebPage;
```

Now this all should work, as far as I can tell. However, "should" and "do" are two different things. My applet errors out during the command

```
dynURLConnection.connect();
```

presumably because my applet has insufficient permission to write files on the web server's operating system or because the web server won't let any write requests to come through. The answer should be in next month's column—briefly—and it should be on my web site (www.xs.com/javacolumn) by the time that you read this.

For the record. I am using Symantec Visual Café as my Java development environment. I am also using the O'Reilly Java books as my main references. I really like the O'Reilly Java books. If you haven't seen them, check them out. The instructional book that I use is *Exploring Java*, by Patrick Niemeyer and Joshua Peck (ISBN 1-56592-271-9, \$32.95). The general reference book that I use is *Java in a Nutshell*, by David Flanagan (ISBN 1-56592-262-X, \$19.95), and the whopping huge (1045page) windowing toolkit reference that I use is *Java AWT Reference*, by John Zukowski (ISBN 1-56592-240-9, \$39.95). They are all excellent. The Java in a Nutshell is so cheap and so useful, compared to other Java books, that every Java programmer should have one. I also have a copy of O'Reilly's *Java Network Programming*, by Elliotte Rusty Harold (ISBN 1-56592-227-1) on order to help me sort out this URL output stream problem. Wish me luck. ♦

ISP

Business Survival Quiz

1.

Do you want to expand your business opportunities?

2.

Are you an ISP trying to become a CLEC?

3.

Are you tired of the phone company controlling access to your customers?

4.

Are you fighting an uphill battle to expand your revenue base?

If you answered **"yes"** to any of the questions above, then you should be talking to us.

Consumers demand high-speed Internet access. And you need to keep your costs low while finding new ways to increase revenues. In today's cut-throat environment, if you don't act quickly, your customers will go to your competitors.

We can show you how to give your customers faster access while you generate higher profits with better control of and less churn in your customer base. You can't afford to delay. It's a matter of your survival.

Contact us now at info@maximumspeed.com for more information about how we can help you succeed.



SPECIAL LAW ENFORCEMENT SESSION TO TAKE PLACE AT ISPCON SPRING 98

Members of the Commercial Internet Exchange (CIX) and law enforcement officials will be presenting a special four-hour session at ISPCON Spring 98 entitled "Good Morning, We're from the FBI." Members of the ISP community are encouraged to attend as the session discusses the Justice Department's initiatives to control Internet activity and hold ISPs personally responsible for the content on their networks.

The Department of Justice (DOJ) has two divisions investigating Internet-based crime. One is the Computer Crime division, which has been looking into hacker attacks for many years. The Child Exploitation and Obscenity division has only recently begun investigating cases having their basis on the Internet.

This will not be a drop-in, drop-out session; it requires a four-hour commitment. Materials will be handed out, so CIX needs to know how many attendees will be on hand. ISPs are encouraged to RSVP by sending an e-mail to ispcon98@cix.org. These e-mails should include the name of their company and how many representatives will be there.

NETSCAPE COMMUNICATOR AND ITS SOURCE CODE NOW FREE

On the heels of Microsoft's announcement that it would unbundle Internet Explorer from Windows 95 for OEMs, Netscape announced it would make its browsing software freely available to everyone. Netscape CEO Jim Barksdale said that the company's business has evolved beyond the browser market. Its standalone client market has dropped, accounting for only 13 percent of the company's revenue in 1997.

Since Microsoft gives away its browser to end users, application software developers and OEMs, Netscape decided to do the same. ISPs may download and freely distribute copies of Netscape Communicator to their customers. Communicator includes the Navigator web browser, mail, chat and the Composer HTML editor.

To ignite development behind the Netscape platform, the source code for Communicator will also become freely available with version 5.0, due out in the second quarter of 1998. This strategy has worked well to establish standards like Zip, for compressing PC files on Wintel computers, and RADIUS, an authentication program for dial-up servers. In the Linux world, code is commonly shared among developers as well.

SITE ZAP — A REMOTE CONTROL WEB CAMERA

Rearden Technology has introduced Site Zap, a web video camera that can be controlled over the Internet using any browser. Using the Site Zap software and camera, anyone can

pan, tilt and zoom in on an object over the Internet. Site Zap is designed exclusively for Macintosh web servers running WebStar or other compatible HTTP servers. It can be programmed using AppleScript or QuickTimeVR Authoring Studio.



The SiteZap Camera

Site Zap comes with a list price of **\$2,795**, including the complete package of hardware and software. It is available at www.rearden.com/siteZAP.

NEW VERSION OF CALYPSO TO FILTER OUT SPAM

Version 2.4 of Calypso, the popular e-mail software, offers a new feature called *Junk Yard*. The feature automatically removes unwanted junk e-mail through simple, user-defined methods. Other features include LDAP directory search, pager notification of received e-mail, and Eudora compatibility that allows users to import their address books from Eudora and other popular e-mail clients. The new version also recognizes international characters.

The product is available for evaluation or purchase at www.mcsdallas.com/mcs/calypso. A single-user copy is **\$39.95**, a five-user version is **\$169.95**, a 25-user version is **\$649.95**, and a 50-user version is **\$1,199.95**.

CISCO ADDS SPECIAL SERVICE FEATURES TO NEW OPERATING SYSTEM

Cisco is integrating features into its IOS 11.1CC software that will enable ISPs to manage bandwidth and track client actions. This release will initially be for Cisco 7200 and the 7500 series routers, but Cisco says it will eventually be functional on the lowest end routers, like the 2500.

One feature is packet marking, which classifies each packet by the user associated with it and gives it a priority. Packets transmitted by users who pay for higher levels of service will be assigned a higher priority than the packets sent by those who don't. Users paying for specific applications are granted access to them at the IP level. Policy management is easy too because profiles of users or connections can be transmitted to all other routers on the network using BGP.

Cisco IOS 11.1C also allows for bandwidth management. Instead of buying expensive bandwidth management devices,

ISPs can assign clear channels to their customers using their 7200 or 7500 series routers.

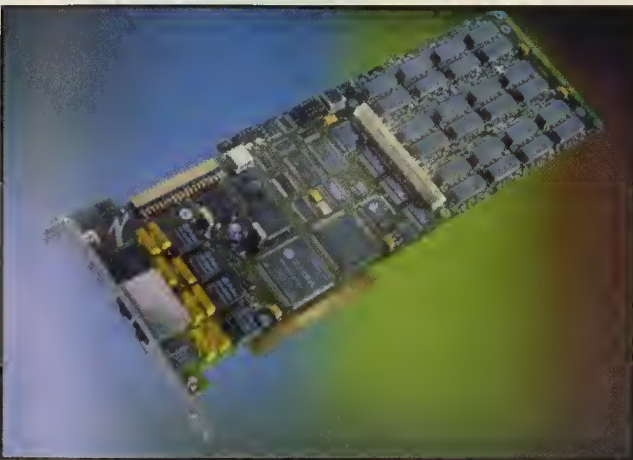
FREE CLIPART, ANIMATED GIFS AND SOUNDS ONLINE

Xoom software is making its collection of 75,000 animated GIFs, backgrounds, textures, sounds and images available online. The web tools are free for personal, non-commercial use. A 4-CD set is available for **\$59.95**, which includes the same 75,000 images and sounds.

"We commissioned artists from around the world, most of them exclusively, to give this collection the variety and depth that consumers and businesses are looking for" said Laurent Massa, CEO of Xoom. "There's no need to search all over the place for the perfect graphic — it's all here in one set."

The Web Clip Empire contains 25,000 animated GIFs, 41,000 non-animated graphics, 5,500 original sounds and music tracks, and 2,500 photos and videos. It is available online at www.xoom.com, or by calling Xoom at **415-445-2525**.

RASCAL RS2000 — A REMOTE ACCESS SERVER ON A CARD



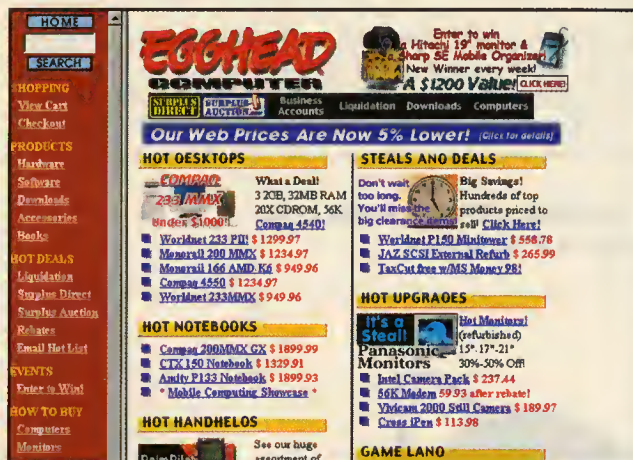
The Rascal RS2000

Ariel Corp. has introduced the Rascal RS2000, which is a PCI card with 12 modem chips. An auxiliary daughter card comes with 12 additional modems. The RS2000 is designed to work exclusively with NT servers, utilizing NT's built-in remote access and network management features.

The Rascal RS2000 can be installed in a few minutes. The procedure is simple: insert the card the same as you would any other PCI card, then install the drivers. It only takes about 10 minutes. The remote access services can be administered through the NT desktop either remotely or on-site.

The product is available through Ariel's sales offices. A complete list is available at the company's web site (www.ariel.com), or by phone at (609) 860-2900. The Rascal is priced at just under **\$300 per port**.

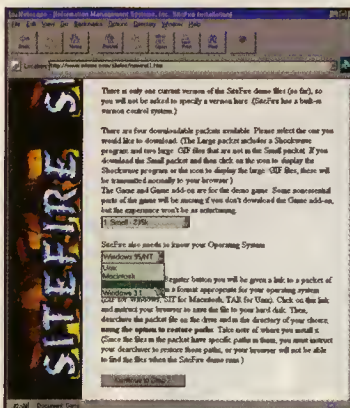
EGGHEAD SHUTS ITS DOORS — MOVES TO INTERNET-BASED SALES



Egghead Software, the retail software pioneer, announced that it would be closing its remaining 80 stores to focus on web-based sales.

The announcement came after the company reported disappointing third-quarter results at the end of December. Although its third-quarter results showed continued losses, the company reported a substantial increase in its web-based sales. Prior to this announcement, two Egghead sites — www.egghead.com and www.surplusdirect.com — experienced sizable increases in traffic. The company has warned, however that it will continue to lose money big time for at least two more years. In the short term, Egghead expects to take a \$42 million loss for its fourth quarter, which ends on March 28.

SITEFIRE SPEEDS UP ACCESS USING LOCAL STORAGE



SiteFire by Information Management Systems

Information Management Systems Inc. (IMSI) has introduced a web server software designed to accelerate end-user web access and decrease the load placed on the Internet. SiteFire is a web server add-on that establishes links between client and server. Frequent visitors of SiteFire-enabled web sites have the images loaded locally on their hard disks. Each time they visit a site,

images are loaded locally, unless the site has been updated since the last visit.

Visitors fill out a quick form telling SiteFire where to store the locally. SiteFire uses a CGI script to install a cookie on the client's computer. This cookie is used to maintain the links. It runs on NT and Unix servers and costs \$395. SiteFire is available online at www.infoforms.com/sitefire.htm.

NET ACCESS OFFERS BACK-END SERVICES FOR ISPS



Net Access (www.netacc.net) is offering back-end Internet services for Internet service providers. "ISPs retain a significant amount of revenue by losing the back-end headaches," said John Warren, president of Net Access. The company allows ISPs to connect to its mail, news and DNS servers, as well as host web sites. Net Access will even do the accounting. The company charges \$2 to \$3 per customer for this service.

This service is geared toward ISP who want to expand but do not have the available capital to purchase new servers. Net Access operates out of a single facility in Rochester, New York, with redundant power supplies, Cisco 7200s, and mirrored DEC Alpha servers running NT and Unix. It has multiple backbone connections to different vendors.

Contact Bill Robbin at Net Access for more information at (716)756-5500.

ITSERV LAUNCHES AUDIO E-MAIL SERVER

ITServ (www.itserv.com) has released an Internet server that receives voice messages, converts them into wave files, and then sends them as attachments to the mailboxes of end users. FirstGate is a non-proprietary server for NT. A Unix version will be released shortly. It allows ISPs to set up voice mailboxes for their users. Anyone can call into a user's mailbox and leave a message. The message is then compressed using a 15:1 ratio and sent to the user as an attachment. Through a 28.8 Kbps connection, a user can download a one-minute message in about 20 seconds.

MGL Hawk-i


Internet Invoicing & Customer Management System

NEW VERSION
HAWK-i 2.0

- COMPLETE ISP Invoicing and Customer Management System
- For use with WINDOWS and/or UNIX based Internet Servers
- FLEXIBLE Package Structures
- BLOCK, DAILY, MONTHLY, QUARTERLY, YEARLY and ANNIVERSARY Style Billing frequencies
- DETAILED Session Logs and Invoicing
- Windows based RADIUS Authentication/Accounting *optional
- Ability to charge for PRIME TIME and REAL TIME (seconds, minutes, hours) Rates
- OFFER discounts or Bonus Time
- SQL READY *Requires Microsoft SQL
- INTERACTIVE web enabled customer account inquiries
- Secure REMOTE database management
- Comprehensive FORMS and REPORTING
- Process CREDIT CARD and PRE-AUTHORIZED PAYMENTS electronically
- EASY to use and install

Visit WWW.HAWK-I.COM and download your demo TODAY!
Email: sales@hawk-i.com or Call: 519.651.2713

Hawk-i



Teach your Internet customers how to fly.

With transparent Web caching from Mirror Image. ISPs and corporations—offer your customers faster surfing while slashing costs and network congestion. Mirror Image Internet delivers the industry's most complete Web caching solution. We've combined the best transparent caching technology with our cache management service. We're also deploying large secondary caches at key Internet access points. The result? Shared community access to content and phenomenal bandwidth savings—as much as 75%.

Turbocharge the Web.
www.mirror-image.com

So now you can offer your customers significantly faster surfing speeds and guaranteed content freshness. All at major cost savings to you. The bottom line? Happier customers. And happier ISPs.

To see how Mirror Image Web caching can help your business take off, visit our Web site at:
www.mirror-image.com, or call us at 800-353-2923.

COME SEE US AT ISPCON BOOTH # 132

mirror image
WTTTOL TWSDE

The ISP needs to install a voice card in its FirstGate server. Voice cards have as many as 24 ports for a single T-1 with 24 dial tone lines. It records the message and digitizes it, converting it into a wave file. The FirstGate software associates each wave file with its destination, which is a user's mailbox. Each user sets up an account on a web page, which is used to administrate e-mail addresses and contacts. End users can use any e-mail client that supports attachments.

The system is priced per port. ISPs can get started with a simple two-port voice card and pay **\$2,000** per port. For larger systems, there is a sliding scale. A 24-port system can be as low as **\$1,500** per port. Prices include the full software license, technical and marketing support.

PRIORI'S NEW HIRED GUNS

High-performance national Internet backbone provider Priori Networks announced the appointment of a new chief technical officer and director of operations. Internet backbone veteran Chris A. Icade, formerly of Nap.Net, is now Priori's CTO. The company's new director of operations is Patrick Gilmore, most recently a network engineer for Johnson Controls Network Integration Services.

"We are delighted to bring this level of technical and managerial talent to Priori," said Robert L. Shearing, president and chief executive officer of Priori. "Chris' experience in taking Nap.Net from a regional ISP to a high-traffic national Internet backbone will contribute significantly to Priori's current efforts to substantially improve technical performance at the core of the

Prominent, rapidly growing, and well-funded Internet company seeks an exceptional billing systems specialist for new venture to launch in early 1998. Requirements include 1+ years of relevant experience for an ISP or a major company in a related industry (such as telecommunications), along with proficiency in the Web technologies. Experience with commercial billing systems such as Portal Infranet is a plus. Experience with Oracle is also a plus. Please fax your resumé to the attention of "Billing Systems" at (212) 403-8499.



Edition (ISBN: 1565923227) has a list price of **\$32.95**.

The book is written by Craig Hunt, who is the leader of the advanced network technologies division of the National Institute of Standards and Technology. Hunt is also a member of the Federal Networking Council, the Large Scale Network Working Group, and the Next Generation Internet Implementation Team. He also co-authored *Networking Personal Computers With TCP/IP: Building TCP/IP Networks (A Nutshell Handbook)* (ISBN: 1565921232), another O'Reilly publication.



Internet. Likewise, Patrick brings the operational know-how necessary for Priori to fully execute on its business and technical strategies. With this kind of technical expertise, Priori continues to move closer to its goal of bringing average data transfer times on the Internet down to the three-second level."

Icade designed and operated Nap.Net's original seven-city network. He began his career in the nuclear engineering industry after earning an engineering degree from the University of Missouri at Rolla. Gilmore is a wide area network specialist. He is an expert on TCP/IP and other industry networking protocols. In addition to being a certified Cisco Systems CCIE, Gilmore has a BS in mathematics from the UCLA.

O'REILLY UPDATES TCP/IP NETWORK ADMINISTRATION BOOK

O'Reilly & Associates has released the 2nd Edition of *TCP/IP Network Administration*. The first edition of the book was published in 1992. The new book covers the latest information on the protocol and spans such topics as configuration, security, and troubleshooting. *TCP/IP Network Administration* Second

A THOUSAND BOOKS AVAILABLE FOR DOWNLOAD

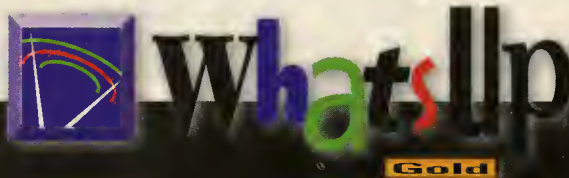
Developer.com (www.developer.com) signed a worldwide licensing agreement with Macmillan Publishing USA to make developer-related computer books available on the Web. The Developer.com Reference Library will be the online home to the full text of as many as 1,000 Macmillan Computer Publishing USA books.

Advertising sponsors the site. Developer.com will link the site to its online commerce site Developer Direct (www.developerdirect.com), where hard copies of the books will be on sale. The Developer.com site will also feature daily news stories and extensive research materials for environments such as ActiveX, JavaScript, VRML, push technologies and JavaBeans.

REGISTER.COM OFFERS FREE DOMAIN NAME REGISTRATION ONLINE

Unlike other domain name registration sites, Register.com (www.register.com) offers free registration of Internet domains. Businesses, ISPs and end users can search for and register a unique domain name with no obligation to buy any other products or services offered on the Register.com site.

Users who register domains are still subject to a \$100 fee from InterNIC. This fee grants two-year rights to the registered name. Once the domain is registered through Register.com, InterNIC will bill the domain owner directly.



Be the First To Know with WhatsUp Gold.

Now with IPX support!

The Best Way to Monitor Your Network

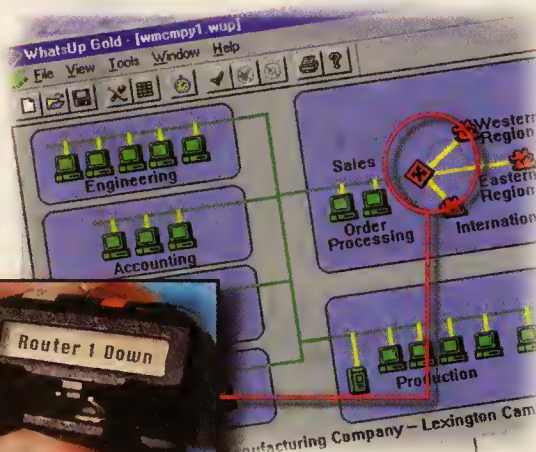


A critical server
is down. The clock
is ticking. And you
don't even know it!

It's every network administrator and ISP's worst nightmare. A server or router goes down with a problem that you could fix in a flash—if only you knew about it. But until you do, that downtime costs your company plenty.

It'll never happen with WhatsUp® Gold from Ipswitch—the high-powered, low-cost enterprise monitoring tool for Windows 95 and NT. WhatsUp Gold keeps you informed by mapping your network, monitoring critical devices, and notifying you immediately when there's a problem.

Get the First Alert Wherever you are, whatever you're doing, WhatsUp Gold alerts you to network problems with desktop alarm, alpha-page, phone message, and e-mail.



Get Web Access to Live Data You're always on top of network status with WhatsUp Gold's Web access to live network data. Use any Web browser to view live network information—including the status of all servers, routers, and services.

Get the Big Picture Scalable, enterprise maps—

with icons representing every department or location—give you network status at a glance. Or zoom in to see detail on each device. Your device mapping capability is unlimited with WhatsUp Gold features like the Map Creation Wizard and object-oriented drawing tools.

The Bottom Line With WhatsUp Gold, your quality of service goes up—and your stress level goes down. Because whenever a problem occurs—wherever you are—you're always the first to know. Find out more about WhatsUp Gold at www.ipswitch.com.

Download a **FREE** copy



www.ipswitch.com/bw1

COME SEE US AT ISPCON BOOTH # 653



IPSWITCH

Ipswitch, Inc • Lexington, MA • ph: 781-676-5700 • email: sales@ipswitch.com

©1998 Ipswitch, Inc. All rights reserved. WhatsUp Gold and its logo are registered trademarks, and Ipswitch and its logo are trademarks of Ipswitch, Inc. All other names and products are trademarks or registered trademarks of their respective owners.

Also available
through Tech Data

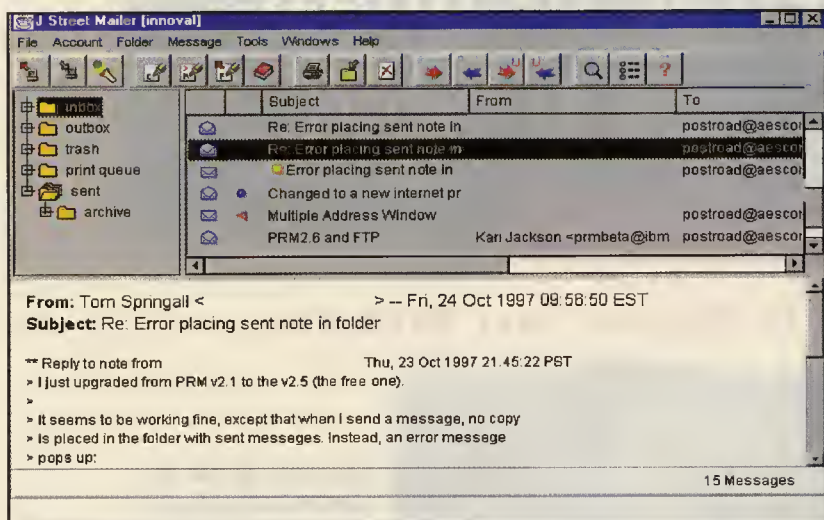


J STREET MAILER -- THE FIRST ALL JAVA E-MAIL CLIENT

After creating a best-selling e-mail client for OS/2, Inno Val Systems released the J Street Mailer for public beta. J Street Mailer was written entirely in Java and works on any pure Java-capable platform.

J Street mailer offers the usual set of e-mail features like MIME encoding, nested folders and multiple address books. It also

has two unique features not found in other platform-dependent mail readers - Virtual Folders and Multiple Personas. Virtual Folders allow users to search for any categorized message. Categories include the date an e-mail was sent or received, address it was sent to or received from, color coding, or attached with a sticky note. Multiple Personas customizes a message based on its recipient. E-mail messages sent to different individuals can have different from and reply-to names, and signature lines.



"Java has been long on promise, but short on applications," said Dan Porter, President of Inno Val Systems, "I wanted our company to build an application that was robust enough and comprehensive enough to show that the Java promise is for real."

The J Street mailer is available for download at www.innova1.com.

SONOMA SYSTEMS INSTALLS ATM SWITCHES FOR CALIFORNIA ISP

Sonoma Systems (www.sonoma-systems.com) a provider of high-performance, low-cost connectivity products for ISPs, announced that it installed its ATM switched on the network of SoftAware (www.softaware.com). SoftAware is one of the largest Internet providers in Southern California providing high-speed connectivity and web server collocation.

Sonoma's Access units have been installed on 25 percent of SoftAware's network. The Sonoma Access units can auto-detect Ethernet, Fast Ethernet and ATM, as well as DS-3 and OC-3 communication lines.

Want the Livingston PortMaster3? Shake hands with us!



As a Livingston VAR, we've been supporting ISPs with Livingston products for over 6 years. No one can get you connected faster. And no one is more ready to help you in the future. Here's to a great relationship...

Network Computing Architects, Inc.
System Integration & Security Specialists

Livingston
Enterprises, Inc.



www.NCAnet.com

Corporate
800-604-6536

Northeast
888-429-9742

Southeast
800-293-4049

Midwest
773-583-9220

Northern California
800-649-7928

Southern California
619-467-0010

"The price point and performance of the Sonoma Access units will allow us to get customers who could not previously afford the steep entry cost of high-speed networking," said Rick Gable, chief operating officer of SoftAware. "Sonoma Access eliminates the need for expensive ATM ports on routers to provide ATM connections. It makes existing routers and LANs instantly ATM compatible."

SoftAware officials also noted that they chose the Sonoma Access product for its price and performance. "It has allowed us to open new markets in the entertainment industry and build a new post-production service offering," said SoftAware President Marshall Rockwell. "We have a large amount of SoftAware's high-speed Internet traffic running through the Sonoma Access now with great success."

WEBBOARD TO SHIP IN APRIL -- BETA AVAILABLE NOW

WebBoard, a live chat software product from O'Reilly & Associates, should be available in April, but a beta version is available for download at <http://webboard.oreilly.com>. The full commercial version will have a list price of \$699.

WebBoard 3.0 will support up to 1,000 users for real-time chat. It is an application that can be used on a local area network or across the Internet. It comes with ConferenceRoom, an IRC-compliant feature. ConferenceRoom is also available as a standalone product for \$495.

WebBoard 3.0 also supports Microsoft SQL Server 6.5, which can manage databases in excess of 200 gigabytes. In addition, WebBoard 3.0 supports Microsoft Access JET database for its data storage and operation. It allows users to participate in conferences while not online. Since the program includes an SMTP server, users can post messages to a specific conference using e-mail. WebBoard 3.0 can also post HTTP requests to a log file, so administrators can analyze its use with a web tracking software package like WebTrends.

CAYMAN INTRODUCES SDSL1400

Cayman Systems, maker of xDSL routers for small offices, introduced its fully functional plug & play SDSL small office router. The SDSL 1400 uses a Symmetric Digital Subscriber Line, which operates on a single copper pair. It communicates at speeds up to 768 Kbps in both directions. Throughput is

dependent on wire gage and the length of the local loop.

Additionally, the SDSL 1400 is fully compatible with Ascend's MAX TNT SDSL Central Office product, which is used by many service providers. It is easy to install and configure. Cayman engineers designed it for managers of small offices, individuals with a limited understanding of networking and routing. Because it's a router too, the SDSL 1400 allows multiple users on a LAN to share its Internet connection.

The SDSL1400 uses version 4.1 of Cayman System's operating system. Version 4.1 has a feature called Swift-IP, which integrates NAT (Network Address Translation) and DHCP (Dynamic Host Configuration Protocol) to allow all the users in an office to connect to the Internet using a single IP address.

The SDSL 1400 is available directly from Cayman Systems (www.cayman.com) and through service providers. It has a list price of \$1,295.♦

Guaranteeing the network never goes down ... that's worth a lot!



IP Magic, from Lightspeed Software, is like having your best network administrator monitoring and fine-tuning your network connections 24 hours a day.

IP Magic's **network reachability** feature checks your ISP gateway availability at regular intervals. If one becomes unavailable, IP Magic automatically shifts all network traffic to another gateway. This, combined with IP Magic's **Network Address Translation** capability, means that when one of your ISP gateways goes down, you don't have to worry about making 1,000's of customers wait while you track down your ace administrator who then may have to spend hours switching addressing to go through your backup gateway.

And, why not speed up performance by utilizing all of your ISP gateways? IP Magic's **preferred networks** feature lets you balance the traffic you send out between all gateways based on number of connections and best path out to specified networks.

IP Magic translates to network reliability and performance—which means you and your customers can sleep better at night!

- Joel Heinrichs
ISP company president

Lightspeed Software

Network Address Translation

IP Magic

Visit www.lightspeedsoftware.com for more details on other IP Magic features, including:

- Enhanced Redundancy
- Web-based Configuration
- Virtual Multi-Homed Hosts

1800 19th Street Bakersfield CA 93301
805.324.4291 E-mail: sales@lightspeed.net

HUMOR MAILING LISTS

by Ray Owens

For the last year, I've been learning all about moderating a mailing list. It's been an interesting year filled with a lot of mistakes, triumphs, a few disasters along the way, and a chuckle or two. E-mail is the killer application of the Internet. It provides the fastest and best way known to mankind to get information from point A to point B. Mailing lists are available on every subject under the sun. I plan on featuring many different subjects, including hobbies, computers, health, jobs, religion, or anything that catches my eye.

In addition to covering mailing lists, I'll also be covering e-mail software, tips and tricks, the companies that make the software, and anything that I can tie together under "e-mail." This first column is devoted to mailing lists for Internet humor. The caveat "write what you know" is at play here, as that's the type of mailing list I moderate.

BAWDY.NET

Type Of Listing	.....Moderated
Type Of Mailing	.....Software: Macjordomo
Subscribe	.....send e-mail to macjordo- mo@bayern.hermesnet.n et. In the body of the letter put:
subscribe	.....BawdyNet your name, your city, your state or country
Subscribers	.....10,000 (as of December 7, 1997)
Frequency of publication	....periodically when he feels like it
Accepts advertising	.....Maybe
Advertising details	.....send e-mail to bawdy- mom@bay ern.hermes- net.net
Moderator's e-mail address	... bawdymom@bayern.he rmesnet.net
Digest Available	.....No.

If you are not of the politically correct crowd, you'll love Bawdy.Net. Monitored by Shawn King, a Macintosh and Internet consultant in Vancouver, British Columbia, Bawdy.Net adheres to the principle that sacred cows make the best hamburger. The list started in October 1995.

I asked King what made Bawdy.Net different from all of the other humor mailing lists out there. His reply: "As far as I know, it's one of the only, if not the only, large mailing list devoted exclusively to humor of a "bawdy" nature. All those jokes that are too politically, racially, ethnically, etc. correct to go into other lists.

"Like a lot of lists, I run things I find amusing. Jokes that amuse my twisted sense of humor. I don't cater to my audience. I happily include jokes calculated to offend. My "Smurf Sex" and "Princess Diana" Collages are legendary in the amount of e-mail, both positive and negative, they generated.

"My subscribers also seem to like seeing the rants I fire off, on occasion, to a particularly thick-headed flamer. I don't mind

people disagreeing or disliking a particular joke. What I have a problem with is the need to insult me and call me names. What were they expecting when they signed up for something called "The Bawdy Net?"

King claims it's hard to find humor like this. "Everyone is so concerned about not offending others that we've taken the illicit joy out of making fun of others," he says. "Let's face it. All comedy is based on others' misfortune. I just give ethnic, racial and religious labels to those misfortunes. <smile>"

Like all list moderators, King has had his share of subscribers who have a strange outlook on the lists that they've joined. King states that he finds weird "those people who will happily read and enjoy the Bawdy.Net collages for weeks and months on end but the first time I gore their particular sacred cow, I get flamed. They happily laughed at the black jokes, the Catholic jokes, the Polish jokes, etc., but when it comes to [insert your personal sacred cow here] they get offended and feel the need to try and tear a strip off of me."

He said one of the strangest letters he'd received was from a subscriber who didn't believe King was black and to see a copy of his passport photo.

ORACLE SERVICE HUMOR MAILING LIST

http://www.oraclehumor.com	
Type Of Listing	.....Moderated
Type Of Mailing	.....Software: Lyris
Subscribe	.....send a blank e-mail to oracle-humor-sub- scribe@lyris.oraclehu- mor.com
Unsubscribe	.....forward message to ora- cle-humor-unsub- scribe@lyris.oraclehu- mor.com
Subscribers	.....65,000+
Frequency of publication	....7 times a week
Accepts advertising	.....Yes
Advertising details	.....send e-mail to sales@ oraclehumor.com
Automatic advertising responder:	.....ad-info@lyris.oraclehu- mor.com
Moderator's e-mail address	...oracle@oraclehu mor.com
Digest Available	.....Yes (usually only one message is sent, though)

I have always been in awe of Steve Willoughby's Oracle Service Humor Mailing List. Willoughby has been around on the Internet doing humor since Moby Dick was a minnow. His Oracle Service Humor Mailing List is one of the most respected humor lists around.

Willoughby started the list in September 1994. "Oracle originated with my efforts to collect the jokes my friends were sending me. I thought that they were really funny, so I forwarded them to a number of my friends, beginning in September, 1994. At this time, I was just doing my friends a favor — they would forward me the joke, and I would forward it to everyone."

Later, he created the Oracle Service Humor Archives while a student at Drexel University. He expanded the site, adding

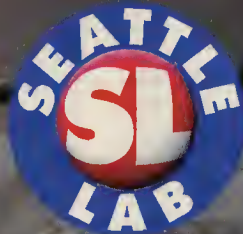
Been Hit Enough?

If your web site can't take another hit,
then you definitely don't want **emurl™**,
the hot new URL-based mail host from
Seattle Lab. Think about it. Everytime
a user accessed e-mail, they would hit
the advertising on your page.
You'd take a beating.

All your user needs is a web browser. All you need is

emurl™

Works with any mail server.
Best with SLmail.



<http://www.seattlelab.com>

Phone: (425) 402-6003

Booth #217 at ISPCON '98

Baltimore Convention Center, March 16-19, 1998

"Why can't I get my
router to connect?"
/

No Whiners.

COME SEE US AT ISPCON BOOTH # 619

We'll take your customer calls for one full year when you recommend Netopia.

Imagine, no raging beepers, no jammed phone queues, no incoherent emails from customers with simple, oftentimes stupid questions. Heaven? No, Netopia.

Netopia introduces a new service for ISPs only. We'll handle all of your router support calls for one year when you sell Netopia. You pay nothing for the service, your customer pays nothing. We've bundled NetopiaCare™ with each award-winning router. Even our newest Fractional T1/T1, 56K DDS, and ISDN routers.

Unequaled in ease-of-configuration and upgradability, Netopia continues to win accolades from technology review experts at Internet World, LANtimes, MacWeek and InternetWeek to name a few.

We've built quite a reputation around ease of use, performance, and customer satisfaction. Not surprising when you consider we've networked over 7 million nodes in the past ten years. Just what you'd expect from "The Internet CPE Specialist."

Call now to join our Netopia ISP partner program (NISP) and take advantage of this special offer. **1-800-NETOPIA** or visit **www.netopia.com/isp.html**.

What have you got to lose except your sanity?

Free!



Get this cool CD radio
(a \$50 value) when you join
Netopia's ISP partner program.
Membership is free and
so is the radio.

netopia™

What the Internet Experience Should Be™



Jim Thompson
is managing
editor of
Western News
Service in
Los Angeles,
California.
He receives
mail at
jim.thompson
@wnsnews.com

TECHNOLOGY FRONT by Jim Thompson Western News Service

COOLPIX 300—THE JAMES BOND CAMERA FROM NIKON

Every once in a while a product comes along that is so unique and intriguing that it becomes a "must have" for any self-respecting gadget freak. The Coolpix 300 Personal Imaging Assistant from Nikon is just such a product. With its video camera, electronic still camera, audio recorder and note pad all built into a single well-designed unit, it is the ultimate James Bond gadget.

The first thing that struck me about the Coolpix 300 is its remarkably compact and comfortable size. What is even more remarkable is how the Nikon engineers managed to fit so much functionality into such a small package. It is 3.1 inches wide, 5.9 inches long and just 1.4 inches thick. With a weight of only about 9 ounces (including the four AA-size batteries), the Coolpix 300 fits easily in the palm of your hand. The 4 megabytes of internal flash memory can store up to 132 pictures or 17 minutes of audio.

COLOR SCREEN

Sliding the protective cover down reveals an extremely clear and sharp touch screen 2½-inch LCD color TFT display. The screen provides full control over all functions of the unit using the included stylus. The stylus, by the way, is a telescoping device (much like the collapsing metal pointers that are used to indicate areas on charts or maps) that fits neatly into the base of the Coolpix 300.

When the unit is first turned on, you are presented with a status screen which gives you complete information on available memory. The screen displays the date, the time and the amount of remaining battery power (expressed in percent). It also shows you how many more photos can be taken, how much time is available for sound recordings and how many photos combined

with audio recordings can be taken. The status screen can be recalled at anytime when the unit is on.

Besides English, the Coolpix 300 is capable of displaying prompts and information in French, German or Japanese.

VIDEO AND STILL CAMERA

After a few seconds the status screen automatically disappears and the Coolpix 300 becomes a video camera which is continually displaying live images. When the Coolpix 300 is attached to a video recorder or plugged into the video port of a computer, it captures real-time video at 30 frames per second in full color as well as audio. This makes it an excellent and powerful tool for video conferencing. Using the Coolpix 300, a standard telephone line and video conferencing software such as CU-SeeMe, you are ready to set up a video conference.

The Coolpix 300 is also a digital still camera with auto exposure and built-in flash (guide number 9 flash with red eye reduction). The programmed auto exposure control incorporates variable shutter speeds from 1/45-second to 1/10,000-second. The lens itself is an f=6.2mm (fixed F4) which is roughly equivalent to a 45mm lens on a 35mm-format camera. A switch on the right side of the camera allows you to change to macro function for shooting small object or objects at very close range. With the macro engaged you can shoot at distances from 5.5 to 9.1 inches.

The unit also has auto gain control, a selftimer (for taking photos that include the photographer) and automatic white balance. You can store 66 photos in fine mode or 132 photos in normal

mode. All photos are stored in standard JPEG format. The difference between fine and normal is the amount of compression that is utilized. In fine mode the compression ratio is 1/10. In normal mode the compression is 1/20. Since JPEG compression is lossy, the greater the compression the lower the resolution of the captured image.





10,000 SUBSCRIBERS
TRAPPED LIKE RATS IN A PIPE... PRESSURE'S
BUILDING...NO FREE BANDWIDTH...NO MORE
LINES...ONLY ONE THING TO DO...

VISIT US AT ISPCON
BOOTH #661

WWW.SKYCACHE.COM



A picture taken with the Coolpix 300

The Coolpix 300 uses a $\frac{1}{8}$ -inch CCD with 330,000 pixels to form a digital image with a resolution of 640x480 pixels.

The viewfinder displays an outline defining the picture-taking area for both normal and macro modes. The outline is bright and easy to see under most lighting conditions. One problem is that the captured image is somewhat larger than what is displayed in the viewfinder. There is not a great difference, but it can cause some problems when shooting photos that must be precise.

Besides single shot mode, you can also set to take photos in continuous mode. When continuous is selected, photos are recorded one after the other as long as you hold down the shutter button. It takes about four seconds for an image to be recorded and the camera to be ready to take the next picture. This is a limitation whether the camera is set for single or continuous operation and does take some time to get used to.

Surprisingly, the Coolpix 300 is not bad on battery usage. I found that with the LCD screen in use (protective cover is open) I was able to get about one hour and 20 minutes of usage. While this is not bad, it can be a problem if you want to use the Coolpix 300 as a video camera or for video conferencing unless you attach the optional AC adapter. When taking still images or recording audio, you can close the protective cover which disables the LCD screen to conserve battery life. When the cover is closed the batteries provide plenty of power. In this mode, I was able to shoot about 125 photos and record about 10 minutes of audio before the batteries gave out. Of course, the actual number of photos you can take will depend on how long the camera is on between photos and whether the flash is in use.

For those who follow the "bunny wars," I found that I got a good 20 percent more life from Duracells than from Energizers (sorry, bunny).

AUDIO RECORDER

Audio can also be recorded along with the images. The recorder, which can store up to 17 minutes of audio, can be set to automatically engage for a pre-set length of time whenever the shutter is pressed (located on the right side of the unit). The recording can be anything from one second to several min-

utes. This mode is excellent for making notations about the photos for later review. The recorder can also be set to activate only when the record button (located on the left side of the unit) is pressed or to begin recording when the button is pressed and continue recording until it is pressed again.

Audio (stored in ADPCM format) can be played back on the built-in speaker, through external speakers or via the speaker on a television set when the images are displayed. The audio quality is fine for voice. However, you will probably not want to use it to record high fidelity music.

MEMO PAD

One very nice feature is that you can add audio to images after the images have been captured. If this is not enough, the Coolpix 300 allows you to add written/drawn information to the images. Using the stylus, you can write or draw directly on an image. This is great for making a note of the dimensions of an object, adding signatures or part numbers.

You can also create a document or drawing without a photo. Just touch the screen with the stylus while the Coolpix 300 is in recording mode and a clear slate is displayed allowing you to write notes, draw pictures, do calculations or anything else you could do with a pen and paper. The result is stored as a JPEG image just like the photos.

Once you have captured data, you will find a number of options for reviewing the finished products. In playback mode, images are displayed as thumbnails. You can select individual images and then display them full screen or have them automatically display one at a time in a slide show (images display for 3 seconds each). From the playback mode you can also easily select single or multiple images for deleting. In addition to displaying thumbnails in playback mode, you are also shown the date and time the image was recorded along with a reference number. Audio recordings and memos are indicated with special symbols. Audio recordings also display the length of the recording.

If the lighting is adequate, the color and contrast of the images is remarkably good. I also found the images to be quite sharp with good color balance and saturation. With a slight bit of touch-up using Photoshop or some other image manipulation program, the images make an excellent addition to a web page. They are also respectable when printed, as long as you keep the image size small. Printed images start to get a bit "pixely" when enlarged three times or more.

TELEVISION DISPLAY

When displayed on a television set, the images are very nice. Attaching the unit to a television is simple. Included with the package is a cable with a single plug on one end (this goes into the Coolpix 300) and RCA-type video and audio jacks on the other end (these go into your television or VCR input jacks). I plugged the Coolpix 300 into my big screen Sony television (52-inch screen) expecting the images to be grainy—they were anything but. The photos were clear with excellent color and contrast even when projected. On a smaller screen without projection, the pictures were even better.

Images, audio and memos can also be uploaded to a computer. The Coolpix 300 comes with two serial cables allowing it to be connected to a PC or a Macintosh. The included Nikon View

***You
could
be
dead***

See you at
ISPCON FALL '98
San Jose, CA

THE WORLD'S LARGEST CONVENTION FOR INTERNET SERVICE PROVIDERS



Sept. 28 - Oct. 1, 1998

Over 200 dynamic
educational sessions,
hands-on
workshops and
discussion groups.

Visit with more than
150 innovative
suppliers exhibiting
products and services
to help your business -
see the very latest
technologies for
Internet access.

Share in the discussion
of issues, ideas, and
developments unique
to the Internet
access industry.

Full conference
registration for three
days includes
welcoming reception,
exhibit floor,
educational sessions
and all coffee breaks
and receptions
for only \$595
(Discounts available for
early registration).



**San Jose Convention Center
San Jose, CA**

REGISTER NOW!
Online at
<http://www.ispccon.com>
(800) 933-6038
(303) 973-6038

Internet
service
providers
are the most
leveraged
group involved
with deploying
a global
Internet.
From our
perspective,
they are the
Internet.

ISPCON FALL '98
Hosted By:



browser window allows you to see thumbnails of the images before selecting those you wish to transfer to the computer. From there you can also delete images and sort them by name or time. Clicking on the information box for an individual image displays the name, size and date the image was taken. You can also playback recordings and trip the shutter of the camera to take a picture from the browser window.



Nikon View Software

Transferring images with the serial cable does work, but I found it to be quite slow. It took approximately 1 minute, 10 seconds to transfer a single photo to the computer. This is fine if you have only a few photos to transfer but it gets pretty painful when moving a hundred or more images. If you use the camera for any serious work, you will definitely want to purchase the optional SCSI kit which allows you to connect through a SCSI cable. The Coolpix 300 has a built-in SCSI connector making the transfer much, much faster. In my tests, I was able to transfer images in a matter of seconds using the SCSI interface. The SCSI kit (\$150 additional) also includes an AC adapter.

The Coolpix 300 is shipped with PhotoEnhancer software from PictureWorks and a trial version of Slides & Sound Plus from InMedia. PhotoEnhancer is a basic photo manipulation package. Slides & Sound Plus is a slide show creation program.

CONCLUSIONS

This is one of the neatest devices I have seen in a long time. If James Bond owns a camera—this must be it. I can just see Q giving one to 007 for his next assignment. (“Now be careful 007, this is a sensitive instrument... and, James, don’t use it in the bedroom.”)

There are, however, some shortcomings. None of them are serious but some can be irritating. First, I would like to see a little higher resolution for the images. A resolution of 640x480-pixels is not bad, but this may not be adequate for some web sites or for certain applications. It is especially limiting when it comes to printing of the images. I would like to see a resolution of 800x600 pixels.

It would also be nice to see a wide-angle lens. I can see a lot of Realtors being interested in the Coolpix 300. However, without a wide-angle lens, it is very difficult, if not impossible, to take photos in small rooms.

I would like to see more memory. Ideally, it would be nice if you could swap out flash memory cards. Although the Coolpix 300 does store a remarkable amount of information, there are times when it is just not enough. If the memory were on a PCMCIA flash memory card, it could also be plugged directly in the PCMCIA slot on a computer.

I also think it should have an attachment for a tripod. If you use the Coolpix 300 for videoconferencing, there is really no way of setting up the camera so it is stable. I had to prop it up with some books. A couple of times I jarred the table and it came crashing down.

I would also like to see a better speaker. When playing back audio through the internal speaker, it is somewhat muddy. If you have a lot of ambient noise (such as in a busy press room), it can be almost impossible to hear. There is also no earphone jack. While you can plug in an external speaker, there is no way to plug in an earphone. It is very difficult if you want to listen to or transcribe an audio recording while on an airplane or in a crowded environment. Another problem is that you can’t play back audio with the LCD cover closed. This results in a greater drain on the batteries.

As noted the batteries can be a problem if you use the LCD screen all the time. However, when using the still camera function or the audio recorder, you can close the cover and disable the screen resulting in acceptable battery life. The optional AC adapter is a must if you want to use the Coolpix 300 for video work. You will also want the optional SCSI cable for uploading data to a computer.

Despite these weaknesses, the Coolpix 300 Personal Imaging Assistant is an incredible unit with enormous functionality. It is definitely on my “must have” list. ♦

CONTACTS:

Coolpix 300 Personal Imaging Assistant

Estimated street price: \$699

Nikon

1300 Walt Whitman Road

Melville, New York 11747

Tel: (800) 52-Nikon

Web: www.nikonusa.com

PhotoEnhancer

PictureWorks Technology, Inc.

649 San Ramon Valley Blvd.

Danville, CA 94526

Tel: (800) 303-5400, (510) 855-2001

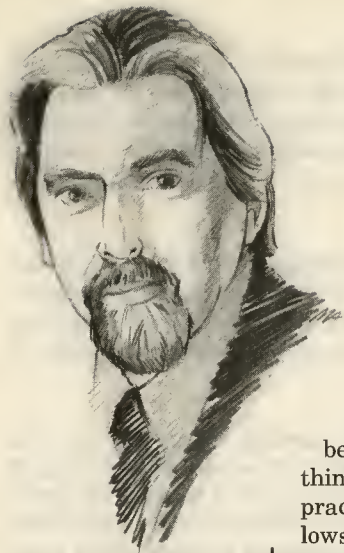
Web: www.picturewords.com

Slides & Sound Plus

InMedia Presentations, Inc.

#800-900 Hastings Street

Vancouver, BC, Canada



Thom Stark is president of **Stark Realities**, an Internet business consulting firm based in the San Francisco Bay Area. He also conducts seminars and tutorials about the Internet at trade shows and for business and user groups. He is the author of the serialized online science fiction novel, *A Season in Methven*, (www.starkrealities.com/Methven) and is also a semi-regular panelist on ISP-TV's "State of the Net" cybercasts. Mr. Stark's e-mail address is thom@starkrealities.com and he maintains a non-commercial web site which focuses on IP networking technologies and policy issues at www.starkrealities.com.

@INTERNET by Thom Stark

ASK NOT WHAT YOUR USERS CAN DO FOR YOU...

When I speak in public, I often preface my remarks with what I consider to be a suitable quote. I also do much the same thing when I write a memo to a client. I find the practice useful, because it sets a tone for what follows and — since most of the quotes I employ are one or another restatement or variation on Murphy's Law — it usually also provides a touch of humor.

Sometimes the citation has to be more serious, though. When the right tone is businesslike, I put away the thoughts of Chairman Murphy and look to other sources. If the subject calls for a really stirring line, it's the generals and politicians to whom I turn.

John F. Kennedy got off a lot of great utterances in his abbreviated life. He once modestly described himself as "the man who accompanied Jackie Kennedy to Paris." But the line for which he will forever be remembered, the one that will perpetually guarantee him a \$200 space in the "Quotations" category on *Jeopardy!* comes from his January 20, 1961 inaugural address: "Ask not what your country can do for you — ask what you can do for your country."

Even at a distance of 37 years, it's an electrifying call to action, evoking patriotism, pride and the nobility of sacrifice for the common good.

Which brings us to the subject of this month's column.

CHICKEN LITTLE ONLY HAS TO BE RIGHT ONCE

I get the same wicked laugh out of the Bastard Operator from Hell stories (www.itol.com/~jason1/bastard.htm) as everyone else who has ever done any meaningful user support. Even so, I try never to forget that, irksome though walking them through their little crises may be, those users are the reason we have jobs. Even if we don't personally have any responsibility for their support, the income they bring to our businesses keeps us in business.

In my mind, that means it is incumbent on ISPs to cater to the needs of their users. You should

devote as much attention as possible to how you can make your users' online lives as easy and pleasant as possible, because they're the reason your business exists.

Note that making users' lives easy and pleasant may very well mean that your job becomes more complex and demanding. That's why the title of this month's offering is "Ask not what your users can do for you..." Nobody outside your family cares how hard your job is — and, if you take your users for granted, there are dozens or hundreds of other ISPs who are eager to woo them away.

Many ISPs concentrate on competing on the basis of price, connection speed and the ubiquity of their POPs. Those are all important considerations, of course, but they're sure not the only ones. In some ways, they're not even the most important ones.

You should devote as much attention as possible to how you can make your users' online lives as easy and pleasant as possible, because they're the reason your business exists.

I get a fair number of inquiries from end users — particularly from small business owners — asking me to recommend an ISP. The ones who are just getting their feet wet always want to know how much it will cost them to get set up on the Web. They may not (and usually don't) know

exactly *why* they want to "get set up on the Web," but they know that's what they want to do.

They're desperately afraid of getting ripped off. Or left to figure it all out by themselves.

And they're not sure which is worse.

They don't understand the difference between hosting their own web server, collocating a server at their ISP and running a virtual domain on an iteration of their ISP's web server. They don't understand DNS or IP networking, they're lucky if they've even heard of ISDN, T-1s or Frame Relay and they assume they'll be able to get a high-speed connection installed on one or two days' notice.

Even worse, they have no appreciation of how much it will cost them to build a suitable web site — or even what that means, exactly. They want it to cost nothing and be done yesterday and they want it to be precisely what their business

AOL Has 11 Million Reasons You Should Use NeoPlanet



FREE to ISPs • FREE to Users

Give your customers the power & flexibility of an online service.

Customizable by YOU and your USERS.

Earn revenue on ads shown to your users.

YOUR BROWSER. YOUR LOGO.

See us @ ISPCON - Booth #144

For more information on NeoPlanet's ISP Program, go to <http://www.neoplanet.com/isp/>
or call Bigfoot at (212) 262-1118 and ask about the NeoPlanet ISP Program.

NeoPlanet is a service mark of Bigfoot Partners, L.P. • Bigfoot Partners L.P. is not affiliated with America Online, Inc.

requires — all without having to put any real thought of their own into it.

Fear and loathing? Hunter S. Thompson has nothing on these guys.

And they've got every reason to be very afraid.

AN OUNCE OF IMAGE IS WORTH A POUND OF PERFORMANCE

Local news radio stations in the San Francisco Bay area regularly run commercials for seminars on "the exciting new field of Internet consulting." The hucksters who promote these foul things assure their targets that "you don't even need to own a computer!"

P.T. Barnum, meet the brave new Internet.

The problem isn't just that the products of these seminars are the deaf leading the lame. The problem is that they're almost guaranteed to create a disaster for their "clients" and blame it, if at all possible, on you.

After all, it can't be their fault — they're "experts," right?

At the same time, your competitors are wracking their brains to come up with

ways to entice your users away. They're giving away software, running contests and promotions and doing everything in their power to outsmart you and capture your market.

Your most useful counter strategy for both kinds of problem is to create a truly transparent set of end-user services and make sure that they're prominently featured both on the top page of your web site and in your advertising (you do advertise, don't you?) Don't just sell Internet access — create a package of small-business services and sell it. Do the same thing for businesses as you should already be doing for individual users.

Make it easy for them.

One popular strategy for making ISPs attractive to individuals is to bundle a collection of basic Internet access tools with a subscription to your service. Whip up a CD-ROM with Netscape Communicator or Internet Explorer for Windows and Macintosh, add in Eudora Lite for Mac and PC, throw in WS_FTP, WS_FTP32 and Fetch, give 'em mIRC and Ircle and don't forget WinZip, UnZip and StuffIt Expander and you've added instant value at minimal cost and with almost no effort.

The only drawback to this strategy is every other ISP on the planet is doing exactly the same thing.

If you want to stand out from the crowd, you're going to have to put out the additional effort and expense that will enable you to provide the extra value that will set you apart. That means providing ancillary services, such as roaming connectivity, chat, streaming media servers and so on.

It also means furnishing your users lots and lots of help in the form of tutorials and step-by-step instructions for installing and troubleshooting applications. It means thoughtfully designing your own web pages so that help is easy and obvious to reach from anywhere on your site. Above all, it means choosing to recruit and train a sufficient number of help desk personnel that, when all else fails, your users can get a human to help them solve their problems.

And it means keeping your help desk open evenings and weekends.

WHEN ALL ELSE FAILS, FOLLOW INSTRUCTIONS

To capture the small business market, you'll need to create a similarly friendly and comprehensive set of services. In essence, you're going to have to create a package that include appropriate combination of services, training and consulting for various small business needs.

Start with education and tutorials. I firmly believe that the more you teach your prospective customers up front, the greater the confidence they'll have in what you propose. Create or commission a set of materials that explain the difference between customer host location, collocation and virtual hosting. Write up an explanation of different connection options and how long your customers can reasonably expect to have to wait to have each one installed. Tell them what each option will cost and make certain it's very, very clear how much of that price goes to the local telco and how much goes to you. Explain the difference between a passive web site, a web site with hooks to a back-end database and one capable of full-on electronic commerce not in terms of the technology involved, but in terms of the difference in cost, complexity and delivery time for each option.

Then develop a package for each of those options. Make alliances with artists who

Date	Description	Amount
1/1/97	Hourly success (Jan 1 - Jan 31)	\$11.95
1/4/97	Auto Credit Card Payment	(\$42.07)
1/31/97	Hourly success (Jan 1 - Jan 31)	\$59.00
1/31/97	Hourly success (Feb 1 - Feb 29)	\$10.52
2/2/97	Auto Credit Card Payment	(\$69.54)
2/2/97	Hourly success (Feb 1 - Feb 29)	\$59.41
2/29/97	Hourly success (Mar 1 - Mar 31)	\$10.52
3/2/97	Auto Credit Card Payment	(\$50.93)
3/31/97	Hourly success (Mar 1 - Mar 31)	\$55.96
3/31/97	Hourly success (Apr 1 - Apr 30)	\$10.52
4/2/97	Auto Credit Card Payment	(\$55.48)
4/30/97	Hourly success (Apr 1 - Apr 30)	\$47.31
4/30/97	Hourly success (May 1 - May 31)	\$10.52
5/2/97	Auto Credit Card Payment	(\$57.83)
5/31/97	Hourly success (May 1 - May 31)	\$59.54
5/31/97	Hourly success (Jun 1 - Jun 30)	\$10.52

"ISP Power is the most complete software package for ISP billing ..."

John S. Dodge
The Wizard OnLine

"ISP Power has been an integral part of our success."

Anthony McGarr
Delphi SuperNet

Download a free demo:
www.isppower.com

ISP Power®
The Tool for ISP Success

- ✓ Automated Billing via Postal or E-mail
- ✓ Automated Collection
- ✓ Customer Management
- ✓ Call Tracking
- ✓ Automated Task Assignment
- ✓ Customizable Bulk E-mail
- ✓ 1-year Free Tech Support
- ✓ 1-year Free Upgrades
- ✓ Server Management
- ✓ Customer Web Inquiry
- ✓ Satisfaction Guaranteed

Access and Oracle Versions Available

ISP Power Corporation phone: 808-539-3785 sales@isppower.com

IT'S HERE

- 90 Internet service providers tested for busy signals
- 39 backbones tested for performance
- All the information you need to choose the right Internet service provider for your home, office or corporation

**INTERNET
SERVICE
PROVIDERS**

BOARDWATCH
MAGAZINE
Guide to Internet Access and the W

**QUARTER
DIRECT**

BOARDWATCH
MAGAZINE

Guide to Internet Access and the World Wide Web

have enough experience to understand the effect that the complexity and bit-depth of graphics has on a web site's download performance. Have them set package rates for turning existing business logos into digital graphics and a la carte prices for other custom graphics. Cut low-cost deals with HTML hackers to build basic web sites from templates in a package like NetObjects Fusion (www.netobjects.com/prod ucts/html/nof.html) or FrontPage.

Recruiting honest-to-Pete programmers to do the coding necessary to create back-end hooks to customer databases is a non-trivial challenge. It's a seller's market, and good programmers are a precious commodity. However, products such as Everywhere's Tango Enterprise (www.everyware.com/prod ucts/tango) and Macromedia's Backstage, (www.macromedia.com/software/backstage) both of which run under Windows NT, reduce the challenge to something a considerably less-experienced programmer can handle. And practice not only makes perfect, but solving a problem once reduces the amount of wheel reinvention each additional version of the same problem requires.

Building a full-function Internet commerce site is an even bigger undertaking. AbleCommerce offers a package called *AbleCommerce Builder* (www.ablecommerce.com/prod ucts/acbdeveloper.cfm) for under \$2,000 that reduces the task to a somewhat more manageable size. AbleCommerce Builder includes Allaire's Cold Fusion RAD system, (www.allaire.com/products/ColdFusion/31/index.cfm) Cold Fusion Studio, WebTrends log analyzer, (www.webtrends.com) Protonet's ProtoFax Internet fax and paging application (www.protonet.com/efax/description.htm) and DCSi's Windows 95-based Font F/X 3-D text renderer (www.dcsifx.com) all in one bundled package — although support for the constituent programs comes from their respective parent companies. There's also Everywhere's under-\$2,000 Tango Merchant system, (www.everyware.com/products/tangoMerchant) but it only runs in the PowerMac environment at the moment, so most ISPs won't have any use for it.

Of course, you can always go to Netscape for purely Unix-based commerce tools, but, in the tradition of the Unix way, its products are based on the assumption that you're comfortable doing a whole lot of C and/or Java programming before you'll produce anything like a usable result. On the other extreme, you can head over to IBM's Lotus division (www.lotus.com) and let them sell you their Domino Merchant package — a product so

easy to use that they don't mention anywhere on the site that it runs only on OS/2 Warp (which you must purchase separately).

Hey, it's a division of IBM, remember?

IF NOBODY USES IT, THERE'S A REASON

I also happen to think you should permit your business users to run CGIs and Java applets on their sites, even if they're doing it on virtual iterations of your web server. Yes, I know there are non-trivial security issues involved, but Rule #1 has always been "The customer's always right," and, dammit, customers want active content — and you're trying to please *them*, not your system administrator.

If he/she complains that your customers are endangering your system by insisting on active content, point out Rule #2: "When the customer is wrong, refer to Rule #1."

I'd also allow MIME file types such as Macromedia Shockwave (www.macromedia.com/shockwave) and RealAudio streams, since Shockwave always did allow and RealPublisher 5.0 (www.real.com/publisher/hpindex.html) finally permits all non-live Real media types to stream via vanilla HTTP. Sure, adding audio and animation negatively impacts the performance of your users' sites (and your system). But, once again, it's what they want.

I also think you should be as generous as possible with user disk space allotments. Let's face it. Disk space is nearly as cheap as dirt these days. There might once have been some excuse for being stingy with it, but those days have gone the way of \$75 per megabyte RAM.

And, for pity's sake, don't oversell your bandwidth to the point where your customers' web site performance is impaired. I fully understand that telcos overcharge for T-1 connectivity, but a reputation for poor quality service is the single most expensive possession you can earn. If your hose is saturated, even at peak times, upgrade that puppy.

Finally, keep after your users for input on services and policies they'd like you to provide. You can't afford to wait passively for information to come to you and they are absolutely your best source of data on the changing demands of the market.

Ask what you can do for them. ♦

ZipLink Internet,

a national backbone provider, is one of the first ISPs to upgrade its network with K56flex™ technology which provides your customers with Internet access at greater speed and efficiency. ZipLink makes it easy for telecommunications and ISP firms to quickly increase their existing network capacity to a larger, faster national footprint.



- Full ATM Backbone
- Easy Dial-up Access
- Network Expansion
- Full Customer Care
- K56flex Technology
- Reseller Programs
- Agent Programs
- Strategic Alliances

For superior performance and easy upgrades, ZipLink recommends the Zoom 56K faxmodem to support Internet dial-in access.

To order a Zoom faxmodem, visit our website at... www.ziplink.net



For information, call **1-888-ZIPLINK (941-5465)**

ZIPLINK, ZOOM, AND K56FLEX™
"The Flexible Standard"



CALL 1.800.380.AGIS (2247)

Your business needs them, we provide them.

APEX GLOBAL
INTERNET SERVICES

www.agis.net



PUTTING THE NET TO WORK by Durant Imboden

WEB SITE PROMOTION, TRACKING, AND SEARCH UTILITIES

This month, we look at services and software that can help you promote your web site, track its position in the search engines, and compare your site's rankings with those of your competitors. We'll also take a peek at three meta-search tools.

URL SUBMISSION SERVICES

By now, nearly everyone has heard of Submit-It!, PostMaster, and the other popular services that automate the task of submitting URLs to search engines. I've tried these services myself, and I've always found them more trouble than they're worth for two reasons:

They emphasize quality over quantity

The commercial version of Submit-It! (www.submit-it.com) lets you announce your site to more than 400 search engines and indexes in 30 categories. Even the free version handles 20 registrations. Its main competitor, PostMaster at www.netcreations.com/postmaster, claims to target "361 search engines, directories, what's new, what's cool, and media outlets, plus 11,261 interested individuals."

But most web publishers, or at least those seeking a general consumer audience, are primarily concerned with a handful of major indexes and search engines: Yahoo, Excite, InfoSeek, AltaVista, Lycos, and WebCrawler, which collectively own 90 percent or more of the web search market. Other services (with the possible exception of Open Text and Northern Light, a promising newbie) aren't worth the spam they generate in a web master's inbox.

They're too much bother to use

Why fill in a questionnaire the length of a roller towel when you can submit directly to the major search engines in a few minutes?

To make matters worse, you still have to add new pages manually each time you expand or update your site. (Yes, the search engines claim to spider all pages automatically, but they really don't—at least not often enough to keep a web site's page listings up to date.)

So what's the answer? I've always believed that it's a good idea to enter each URL in each search engine by hand. Or at least I felt that way until I discov-

ered the one free web tool that should be on every web master's "Bookmarks" or "Favorites" list: Add a Site at <http://net-v.com/addasite>.

Add a Site is a web page divided into two frames: an e-form and a display window. The e-form asks for a URL and your e-mail address. When you've entered the required info, you click the name of a search engine. The search engine's response page appears almost instantly in the display window, confirming the entry just as if you'd submitted the page manually. You can then click the name of each other search engine in turn until you've made the rounds of AltaVista, Excite/Magellan, HotBot, Northern Light, InfoSeek, Lycos, WebCrawler, and Open Text Index.

If you have more pages to enter, just type their URLs and repeat the procedure. (The e-form holds the URL after submission, so you can simply edit the filename without having to re-enter the rest of the address.)

Add a Site is owned by NetVision, www.net-v.com, whose other products include PowerSearch (U.S., UK, and Australian versions), Celebrity Search, and Celebrity Site of the Day. It's a great service, and it's free—although it's a service I'd gladly pay for, since it knocks 10 or 15 minutes off the boring task of entering my new URLs each week.

WEBSITE RANKING TOOLS

Rank This!, www.rankthis.com, is one of the better-known services that tell how high (or low) your web pages come up in the major search engines. The interface is commendably straightforward: You enter a key phrase and URL, then click a button with the name of a search engine. After a short wait, you're told the page's rank in a search for that key phrase (but only if it placed in the top 200 search results). The display also shows the top 10 pages as hot links, so you can click on the winners and see what they know that you don't. The service is free, and you don't need to register, so you can check your rankings without fearing an onslaught of unsolicited e-mail.

ScoreCheck, www.scorecheck.com/home.html, takes a different approach. You fill in several blanks, and ScoreCheck e-mails you the results of its search for your keywords and URLs. You can check two URLs and six search engines at a time

Durant Imboden is a freelance writer whose credentials include published novels and nonfiction, fiction editing and staff writing for *Playboy*, travel writing for corporate clients, and representing authors at a New York literary agency. He currently manages the Writing Forum on The Microsoft Network and co-authors the "Flame Wars" column on Delphi, where he is an editorial consultant. Durant maintains a web site for writers at <http://www.writing.org>. MailTo: imboden@writing.org

**Introducing
The WebSurfer
ISP Partnership
Opportunity
1-888-527-8888**



Internet TV Set-Top Box



**GO
for the
Green**



Web Surfer

www.websurfer.com CO

free, but purchasing ScoreCheck "tokens" (three searches for \$20) will let you check more pages and search engines on a regular schedule. The resulting "ScoreCards" are useful, but they don't offer much that you wouldn't get from the free Rank This! service. And, unlike Rank This!, ScoreCheck doesn't provide instant gratification.

Position-Agent from Submit-It, Inc. is easy to use and has an attractive user interface. Results appear on a web page while you watch. The free version is useful, and you can subscribe to a more powerful version with e-mail reporting for \$60 to \$1,400 every six months. (\$60 gets you five keyword/URL pairs, while the higher price includes 200 URL/keyword pairs.) For details, visit www.positionagent.com.

Did-it Detective, at www.did-it.com, is a free service that's designed to attract prospects for Did-it's URL submission service, a *Search Engine Secrets* book, and a "Did-it Plus" service that guarantees to move your page into any search engine's Top 20 for a \$299 setup fee and a quarter of a cent per click-through for traffic you wouldn't have received otherwise. I tried the free service, and I was unimpressed by the results. What's more, my last trial of Did-it Detective resulted in up to two e-mail solicitations per day for the company's services. This went on for several

weeks, until the company apparently realized that I was a cheapskate, a reviewer, or both.

Web-Position, from FirstPlace Software, is a different animal from the online ranking services. It's a software package that you download and run from your PC while connected to the Net. When the software finishes its search, it displays the results of a given "mission" as a web page. You can save the results for printing or review at a later time—which is just as well, since this well-designed program offers a battery of reports such as a "trend report" (are your rankings up or down?) and an "alert report" (attention! you've dropped out of AltaVista entirely!). WebPosition comes in a \$99 Standard version and a \$279 Professional version, and you can download a 30-day trial package from www.webposition.com.

LINK TRACING

When you're anxious to know how people are finding your site, Radiation's LinkTrakker may be the tool for you. It combines a "databasing system, spider validation facility, and report generator" that trace and analyze referring pages in a process that LinkTrakker's developers call "resurfing the clickstream."

Compared to standard *referrer.log* files, LinkTrakker is said to take up less

space and deliver data in a more accurate and usable form. The program works by putting either a Server-Side Include (SSI) tag or a "LinkTrakker collection unit" on each page and recording visitor information whenever the page is accessed. There's one hitch: LinkTrakker works only with Unix servers. The package costs \$250 and can be ordered online at www.radiation.com/trakker.

METASEARCH TOOLS

Metasearch software, like Quarter-Deck's WebCompass, <http://arachnid.qdeck.com/qdeck/products/webcompass>, can streamline keyword searches in multiple indexes and search engines. The current version of WebCompass is a good value at \$49.95 list, although it does take some practice to use effectively.

If your needs are simple, you may be satisfied with one of these free online meta-search tools:

All4One Search Machine, www.a114one.com, is exactly what its name implies. You enter a keyword or phrase in a blank, click "Search," and the site displays results from AltaVista, Lycos, WebCrawler, and Excite in four tiled frames with scrollbars.

You can display any of the search engine's pages at full size by clicking on a button. Another option is to click the buttons for five major topics; selecting "Computing," for example, displays CMPnet, ZDNet, Internet.com, and the "Cool Tool of the Day" at Andover.Net.

MetaCrawler, www.metacrawler.com, is an even more convenient page for integrated searches. Enter your keyword(s), and the site displays a single list of results from Lycos, InfoSeek, WebCrawler, Excite, AltaVista, and Yahoo, ranked according to relevance. MetaCrawler isn't a new service (it was developed in 1994 at the University of Washington), but it's often overlooked in this era of brand-name search sites. ♦

Do you have an Internet-related product, service, or success story that might be appropriate for *Boardwatch Magazine's* "Putting the Net to Work" column? If so, MailTo:imboden@writing.org.

POP quiz

PSINet is:

- a) **A provider of Internet private-label services for ISPs to resell**
- b) **The only national Tier 1 backbone network offering free peering to ISPs**
- c) **An Internet-optimized network with hundreds of POPs throughout the U.S. and Canada**
- d) **One of the largest and most experienced Tier-1 Internet service providers in the world**
- e) All of the above.**

The answer is...

All of the above...and much more!

As a partner with PSINet Carrier & ISP Services, your company can become a provider of leading Internet services with a single phone call. By leveraging our national Tier-1 backbone network and our proven line of Internet solutions, you can easily add a high-profile, revenue-enhancing dimension to your business.

- Programs available for all ISPs, large and small – starting at only \$1,250 a month!
- Access to POPs covering 85% of the continental U.S.
- User-friendly account management system
- Reliable performance via our Internet-optimized network

COME SEE US AT ISPCON BOOTH # 320

PSINetSM

1-800-539-8388

www.psi.net/bw/wh2

© 1998 PSINet Inc. PSI, PSINet and PSINet logo are trademarks of PSINet Inc. All other trademarks and service marks are held by their respective owners.



Steve Stroh learned wireless TCP/IP networking as an amateur radio operator (callsign N8GNJ). He's one of the founding members of the Puget Sound Amateur Radio TCP/IP Group and is secretary for Tucson Amateur Packet Radio (TAPR), a national not-for-profit amateur radio research and development corporation that specializes in wireless digital communications.

Professionally, he's a NetWare and Windows NT administrator for a large company. He's done battle with UNIX a few too many times and mostly lost, so now he's learning Linux and BSDi in preparation for his next UNIX challenge. Steve lives in Woodinville, Washington (in the shadow of Redmond) with wife Tina and daughter Merideth. He can be reached at steve@strohpub.com.

WIRELESS Data Developments by Steve Stroh

THE LAST FIFTY FEET

In my February 1998, column I mentioned that I had read of a wireless system specifically targeted at home use. The system that was I heard of (which I mistakenly attributed to IBM) was probably ShareWave's (www.sharewave.com). ShareWave intends to market a wireless networking system for the home that will eventually integrate appliances, home entertainment systems, PCs, and a "home server" into a network, and will likely handle the telecommunications connections for the home. ShareWave's investors include Intel (although not mentioned by name) and Microsoft.

Wireless is about the only way that the vast majority of homes built prior to 2000 will be effectively wired for the next century. When high-speed Internet access finally arrives at a home, in whatever form — wireless, cable modems, xDSL, or even fiber — *how* does it get distributed to the various "systems" within the home (the last 50 feet), such as the TVs, the PCs, or telephones? Wireless is the ideal method.

There seem to be three major components to the ShareWave system. The first is the wireless networking. I'll speculate that ShareWave will make use of the Unlicensed National Information Infrastructure bands — wide bandwidths are available, and no license is required. At the frequencies of the U-NII bands, penetration of walls is something of a problem, but that's probably a feature in a system designed to be used in a home or a neighborhood.

The second component is the home server. The home server is an interesting idea that has been discussed by Intel and other companies. Basically, it's a low-end server that will store the family's digital photographs. It's also the logical place to store the weekend's movies that have been downloaded. The home server is also the logical place to terminate all of the external communications circuits (telephone, Internet, and video) and distribute the internal communications — the television receivers, the audio systems, the PCs, the telephones, and all the devices that aren't currently networked or integrated... like the security system, the thermostat and furnace, the home intercom, etc.

The third component is the various interface units for the systems mentioned above. Now that there is a universal digital interface available — universal serial bus, it's probably pretty close to practical to begin including a USB port in all kinds of systems that previously had no requirement for external networking. A ShareWave transceiver would then be connected to the USB port, and handshake, and then the previously standalone unit would become networked.

The implications of ShareWave's system for Internet access are very interesting. I recently read of a system for home and small business use that tracks long-distance costs, updated monthly, and makes decisions on least-cost routing. The main point of this system is that the average person doesn't care which network a long-distance call is carried on, as long as the quality is adequate and the price is low. The home server would be able to take this idea one step, or even two steps further. Not only could the updates be performed daily, but why not simply route the call over the Internet? The end user picks up the phone or clicks on a phone book entry on his PC, and is connected to the other party's voice mail. It simply doesn't matter if the network is the heavily tariffed, circuit-switched, bandwidth-limited public switched telephone network, or the Internet.

To be sure, ShareWave will have problems to overcome. Security of communications will be a big issue, but 128-bit encryption is legal within the United States. Discrimination and interference between various homes will be another.

Needless to say, I'm impressed and excited with ShareWave's concept, and I'll be tracking it closely.

POINTCAST CONNECTIONS AND THE RAPIDLY CHANGING FACE OF COMPUTING

I'll candidly admit that I'm late to the party on discovering and exploring the joys, agonies, and potentials of push technology for the Web. My only experience to date has been with PointCast, and I'm still exploring its various nooks and crannies. One of the more pleasant discoveries on PointCast is a feature called *PointCast Connections* and a weekly column called *The Rapidly Changing Face Of Computing*. RCFOC is a well-written, wide-ranging discussion of the impacts of computing technology from the perspective of Jeffrey R. Harrow, a senior consulting engineer with Digital Equipment Corporation. What he writes is not necessarily the views of DEC, but they pay him to write it and publish it from DEC's web page (www.digital.com/rcfoc), so they must not find his content too objectionable. Harrow telecommutes from home, and travels frequently, and best of all, writes very well. You can follow RCFOC via PointCast, the DEC web page, or a mailing list. I'll plug intelligent web publishing whenever I see it, and RCFOC is an example — many (if not all) back issues are available on the DEC web site so you can browse backwards to see what you've missed in previous columns.

PointCast Connections is technically interesting because it appears that PointCast is willing to offer itself as a "broker" (no charge, at the moment) for web pages that wish to "publish" information in "PointCast format." To quote from the relevant portion of the PointCast web page: "Connections enables virtually anyone with a web site — from iVillage to Fidelity to MCI — to become a webcaster and broadcast information directly to interested viewers' desktops in an integrated, TV-like fashion. Now, for the first time, any web site publisher can establish ongoing communications with PointCast's large, active audience and provide viewers with the latest information on special areas of interest."

"Webcasting on PointCast Connections is free and easy. Information can be broadcast via any standard web server and there's no programming involved! Plus, Connections provides support for password-protected files which use standard HTTP authentication, so subscription-based broadcasts are no problem. For more information on how you can become a Connections webcaster and broadcast to PointCast's established viewership for free, visit (<http://pioneer.pointcast.com/connections/webcaster>)."

This is my twelfth Wireless Data Developments column for *Boardwatch*, and no one has told me to stop writing yet. So next month I'll begin my second year of writing for *Boardwatch*. It's been an interesting experience — I've learned a lot, met some really interesting people, and have had a lot of fun. ♦

What if you could...

offer Internet faxing—the perfect value-added service to attract new customers,

retain existing customers and

guarantee a recurring revenue stream without upfront investment in software or infrastructure?

You can!

Simply contact **.comfax**—the Internet Fax Company. **.comfax** lets you provide your customers low-cost, high-quality faxing solutions over the Internet. Using a PC or an Internet-enabled fax machine, faxes can be securely sent across town or across the world, hassle-free. Differentiate your services and your company. Ask about our ISP Associate Program today and start enjoying new-found profits.

SEE US AT ISPCON BOOTH #402

Call 1-888-5-COMFAX
e-mail: info@comfax.com
web site: www.comfax.com



Your Customers Will Smile

Because they get the
REAL FULL THROUGHPUT
they paid for remote access



MOXA Async Server provides speedy remote access connection to 921.6K bps and throughput at 460.8K bps for 8 port simultaneously. To learn more, call us or visit our web site today.

1-800-699-MOXA or www.moxa.com/ra



Tel: +1-408-7342224
Fax: +1-408-7344442
Email: sales@moxa.com

Your ONE STOP SOURCE for Content on Your Site

Weather



Sports



Entertainment



Lottery



Soaps



News



Horoscopes



Financial



Gardening Tips



Packages
for any budget
Call Today
800-881-3349

Days of Our Lives
SOAPS

John continues to wonder that he's still in love with Marlene and that she has abandoned the baby. The police warn him that he can't be happy because he can't be sure that he is really the father. John returns to the hospital and he finds out that he is not the father. Marlene admits to John that she had a baby with another man. Marlene then reveals that she is pregnant during the hard meeting that had John in his busy work. John refuses to go that she is hurt out in front of him. John and Marlene had a baby that she had chosen to kill John. John warns Marlene that if she is not with him in her future, she will move on without her. She is pregnant.

Check Out our AccuNet® Demo at
accunet.accuweather.com

ACCU WEATHER
The World's Weather Leader™

385 Science Park Road, State College, PA 16803
Call 800-881-3349 • Fax 814-231-0453 • E-mail salesmail@accuwx.com
Visit our Internet site at: <http://www.accuweather.com>
© 1998 AccuWeather, Inc.

ONE ISPCON
Booth #553



Lessons Learned in the LADS Tariff Proceedings in Colorado

by Janet Coursey

Two weeks ago I watched the sun rise in front of me while driving from Basalt, a small town a couple hundred miles west of Denver. I left my home at 4:30 a.m. to drive through the dawn over Vail Pass to Denver to attend a 9 o'clock hearing at the Colorado Public Utilities Commission (COPUC) regarding US West Communications' application to eliminate the local area data service (LADS) tariff.

Technically and economically, LADS is the best tariff for ISPs to use to provide xDSL service. I help operate Aspen Internet Exchange's (AIX) HDSL network (www.aspn.net). We use the LADS circuits to serve homes and businesses within the approximately three mile radius surrounding our POPs from Aspen to Glenwood Springs.

LADS is a metallic, point-to-point, unloaded 2-wire or 4-wire circuit. In plain language, a customer of the telephone company who orders LADS service is simply ordering a copper pair between two points, and is not ordering a dial tone or any other telco service with the copper. To use the copper pair (sometimes called a "dry pair"), the customer places its own modems at both ends of the line. The practical result can be T-1 speeds at a monthly cost that is far, far less than the cost of getting a T-1 from the telco.

AIX is small ISP, exclusively focused on dedicated access, so we have been watching with interest since June when US West filed the proposal to remove the tariff. As reported at the hearing, so far US West has removed the LADS tariff in seven of its fourteen states, rescinded its petition to remove the service in three states (i.e. those states still have LADS), and have open dockets in four states.

If an ISP hopes to offer xDSL service, the survival of the LADS tariff may determine whether it can economically compete against the ILEC's own xDSL services — typically offered through a non-regulated "advanced service" subsidiary company, and not subject to tariffed pricing. We were unable to determine the intra-company transfer price that US West would charge to INterprise for the circuits that the new DSL service in Phoenix will use. Clearly the economics vary greatly

depending on whether splitters are used to provide voice or dial tone line sharing on the same circuit.

The telephone companies in other parts of the country are also likely to try to eliminate their LADS tariffs. No matter where you are located, act now to install at least one LADS circuit, so that you will be notified if your telco tries to eliminate the LADS tariff. Be alert to such efforts so that you can counter them promptly!

If I knew then what I know now, AIX would have done better at the hearing, in advance of the hearing, during the testimony process, and in education of the COPUC.

The COPUC was quick to learn what was involved, and after our initial response to the filing, became engaged. But be aware how many open dockets and how few staff there are. Things that are obvious to us are new to them. For example, it was not until the hearing that the technical specification for LADS was discussed, and then it was admitted as testimony only with effort. Without this, the administrative judge could have assumed that anarchy ruled — that users could put any equipment they darn well pleased on a circuit. But the spec gives power and spectrum operating envelope for signals placed on the circuit.

Lesson 1 — Order the LADS spec as US West Publication 77314 from Faison Office Products (303-340-3672, or 800-777-3672, \$23 on diskette) and read it into the public record of the docket, either as testimony, or refer to it with your comments summarizing the operating provisions and safeguards for US West therein.

US West claimed at the hearing that the tech pub was confidential material, so if you can attach your order form and credit card slip, that should help. Apparently everything it sends to the PUC is stamped "Confidential" as a matter of course; it is your job to determine what is not!

The PUC staff will be learning more about the xDSL world, but the hearing, if it goes to hearing, will be before a judge,

New MasterSwitch™ from APC eases the burden of managing remote sites

Eight Channels of Manageable Power: You can connect all you need to manage

Built-in 10 Base-T Networking gives you flexible communication options

LED Outlet Power Indicators ensure accurate power usage readings

Remote Configuration via Built-in Serial Port saves time and money

LED Status and Link Indicators let you determine power distribution instantly

The MasterSwitch™ graphical user interface can be conveniently called up through your Web browser.



Remote management of systems can be costly. Even if you avoid the expense of remote staff, \$500 visits by a field technician to reboot a locked server quickly eat into your systems budget and company profits.

APC's new MasterSwitch™ offers a cost-effective and efficient network management solution so you can forego staffing and avoid service calls.

The MasterSwitch directs power to connected file servers and internetworking equipment from anywhere on the network. Administrators can use an SNMP management system or Web browser to power, de-power or reboot equipment. Additionally, MasterSwitch can be connected to a modem for out-of-band management.

MasterSwitch provides 8 relay-controlled, manageable outlets. Each outlet offers independent switching of power to a connected load, which allows remote power control with-

out affecting other attached equipment. MasterSwitch will save you time and a trip, whether across the country, across the city or across the hall.

When connected to an APC UPS, MasterSwitch lets you manage your system's uptime. Power can be shutdown on a plug basis to extend the UPS's runtime.

MasterSwitch also features Web-based manageability for powering connected loads, and features an intuitive, low bandwidth graphical user interface which can be accessed by any Web browser. The interface lets you set links to other connected devices or to APC's PowerPage™ and on-line technical support. In addition, APC extends industry standard MIB-2 compliance to provide additional power management capabilities via SNMP.

MasterSwitch eases the burden of managing remote sites, and maximizes the uptime of

servers and internetworking equipment. Best of all, it comes from the world's most reliable source of power protection and management: APC.

FREE! Guide to Power Protection
 Just mail or fax this completed coupon for your **FREE 60-page Solutions Guide**. Better yet, order **Solutions** today at:
promo.apcc.com KEY CODE A996Z

☐ **YES!** I'd like more information. Please send my FREE Solutions Guide.

☐ **NO,** I'm not interested at this time, but please add me to your quarterly newsletter mailing list.

Name: _____
 Title: _____ Company: _____
 Address: _____
 City/Town: _____
 State: _____ Zip: _____ Country: _____
 Phone: _____

Brand of UPS used? _____ # _____
 Brand of PCs used? _____ # _____
 Brand of Servers used? _____ # _____

OFFICIAL POWER PROTECTION SOLUTIONS

(888) 289-APCC x7221 • FAX: (401) 788-2797



MasterSwitch (shown in an APC NetShelter) can easily reboot remote servers, internetworking equipment or banks of modems to prevent service calls. The perfect complement to your APC Smart-UPS, MasterSwitch gives you complete, remote control of eight independent power outlets to put an end to the frustration of locked-up equipment and wasted time.

©1998 APC. All Trademarks are the property of their owners. MS01EF

(800)347-FAXX PowerFax

E-mail: apcinfo@apcc.com

132 Fairgrounds Road, West Kingston, RI 02892 USA

APC has won more awards for reliability than all other UPS vendors combined.



who will only take into account the information legally present in the docket. US West made it seem that xDSL was the wild, wild West of unruly ISPs. Somehow we should have legitimized our interest by educating about the broad standards work underway for the HDSL-2 spec and the other DSL formats. The sizes and memberships of those committees should have been referenced, as well as the participating companies like Rockwell and Nortel. The PUC and the judge should be made aware that a deep international shift is ongoing, and that there is a risk of their state being left behind, or at least being left to the deployment schedule and whims of the ILEC.

Lesson 2 — Set the stage, the world stage. Use a few paragraphs in your testimony or comments for the history of DSL standards, cite some statistics, drop some household names of the manufacturers involved. MCI intervened in the Colorado case, but seemingly on principle only, so I'm afraid our battle was perceived as some small rural ISP wanting to do some funky, odd renegade line use rather than a fundamental battle about how do people get to use the copper in the ground for high-speed data.

US West expressed great concern that the LADS circuits were not remotely testable, and related, that they bore the expense of site visits when trouble calls were made. The first half of this straw man was hard to counter; talk about shadow boxing. Since it is a raw circuit, the basic test is for connectivity, which we can perform with a ohm meter. A more sophisticated test of frequency requires a signal generator and spectrum analyzer, both of which we use as tools in our practice. The only problem we've had has been not getting all the loading coils removed during initial installation. So our private response was, "testing? What testing?" but of course the judge didn't know and still doesn't know, that \$15 ohm meter from Radio Shack will do most of the testing.

Lesson 3 — In the docket, describe the equipment needed, its cost and availability, and process of testing a LADS circuit for continuity. State why continuity is important and why other tests are not.

US West harped on about the expense of testing the LADS circuit by requiring a person in the field. And about the potential for interference with other circuits (which we quite respect, any crosstalk affects us too!) We got lucky on this one, but don't leave it to chance.

Lesson 4 — In Colorado at least, LADS is one of several "private line tariffs." For those products, if a service call shows the problem to be US West's, it pays for the trip. If their investigation shows the problem is the customer's problem, the customer pays. Investigate this and get it into the docket. Further note: if a customer's misbehaving equipment causes line trouble, US West has the remedy to disconnect your circuit. That word "remedy" is the important legal term to use — it means they don't have to remove the LADS tariff to fix the problem; they already have remedies at their disposal.

A principal reason for removing the tariff cited by US West was the historically declining demand. The PUC has the ability to request "audits" from the ILEC and a variety of numbers came back. Sometimes the number of circuits was given, and sometimes the number of customers (a customer such as an ISP might have more than one circuit in its name). The statistic given most emphasis at the hearing was that about the

same number of circuits existed in the spring and fall of 1997. Because we know that AIX has caused both new circuits and new customers during that time, that means some other customers dropped the service. No one asked the real question: how many of those customers (circuits) were the same in both counts? We believe that historical use of LADS for "alarm circuits" is being replaced by data service use, even though the totals stayed the same.

Lesson 5 — Help your PUC phrase the audit requests. Clarify number of customers vs. number of circuits. Ask for several snapshots over the past year. You can ask how many customers (circuits) were the same between two snapshots. The names of the customers are confidential so it is important to phrase questions in a way that acknowledges and respects that, otherwise US West will use that as grounds not to answer.

MCI then tried to ask at the hearing whether US West had tried to reverse the decline in demand for LADS circuits, by marketing them, or running a promotion. US West replied that it never marketed any private line services, and MCI tried to introduce some pamphlets, showing advertising for similar circuits (ISDN?). But it was too late! New information cannot be introduced at the hearing (except subject to some legal necessity of response). But clearly we would have liked to supported our hunch that US West had other motives for removing the tariff at this time.

Lesson 6 — Add the US West marketing literature to the docket. We received a flyer touting the speed and reliability of the forthcoming DSL service in our regular business voice line bill in the fall. That, plus copies of the US West web pages describing its services should have been discussed in, and accompanied by, our comments or testimony.

Several verbal skirmishes tried to establish the truth or falsity of whether other tariffed services could replace LADS as "functionally equivalent". Two unbundled circuits back-to-back was the favored one. However at least in Colorado, there is no technical definition of "unbundled loop" so it cannot really be determined whether it meets the tech spec (see Lesson 1 above), or whether unbundled loops might be loaded with no way for a CLEC to force US West to remove the load.

Lesson 7 — Get nitty gritty about the "functionally equivalent" replacements. In your cross examination, request in writing the circuit response characteristics for proposed replacements, and the reference to them in the tariff. Do those lines have a 3 KHz voice limit? State that this means DSL won't work, whereas it will work on LADS. Ask the names of CLECs at your central offices who can provide them to you.

Continuing in the replacement vein, it was furthermore noted that unbundled loops can be ordered only by CLECS, whereas LADS can be ordered by anyone. And that the price for the two loops would be about double the present LADS rate.

Lesson 8 — See if the PUC has a opinion about the cost of an acceptable replacement for a discontinued service. Can twice as costly be considered "equivalent"? Five times? Ten times? In essence, US West is saying we'll remove the \$25 per month LADS but we can offer you the \$250 per month T-1 (DS-1). Try to get something in the docket about whether the public interest is served. Make a chart with the proposed replacement pricing. It gets hard for people to understand the spoken numbers.

Source Technology

The Lowest Price Source for ISPs

Providing 3Com /U.S. Robotics Total Control Products & Services

- Sold More Server Based U.S. Robotics' x2 Solutions Than Any Reseller
- The Benchmark for Quality Pre-Sales and Post-Sales Support
- Colossal Growth Through Best-In-Class Customer Satisfaction
- Financing Solutions Tailored to Young, Fast-Growing ISPs

888-765-5758

**Source
Technology**

www.source-technology.com



Finally we've tried to keep our customers out of the mess but in retrospect, we should have asked a few eloquent ones, as well as concerned prospective customers, to contact the PUC directly. A nearby hospital would like to connect to a neighboring clinic using LADS. Some schools are considering connecting nearby schools using LADS. They are all waiting to see what happens and the interest expressed by a hospital or school carries weight with the public interest mandate of the PUC.

Lesson 9 — get comments from others, especially educational, medical, senior-care, etc. interested parties. Help them to contact the PUC and express interest in using LADS and describe the purpose.

And Now, for the Rest of the Story....

By Todd Erickson

Back in May of 1997 US West filed an application and advice letter with the Colorado Public Utilities Commission (PUC) to grandfather current LADS circuits, and to stop offering new circuits to the public. US West wanted to allow current owners to be able to keep their circuits for five years, and then force them to choose another service. US West also filed the same type of application in 11 of the 13 other states it does business. It is interesting that US West sought to eliminate the circuits soon after *Boardwatch* published an editorial by Jack Rickard in the March 1997 issue, urging US West to expand the use of LADS circuits to avoid switched circuit overload. We also published a quick summary of this case in the August 1997 issue of *Boardwatch*. So you know the news, now here's the rest of the story.

Coincidentally enough, at the same time US West is trying to keep the public from purchasing LADS circuits (which can be used by ISPs to offer low cost xDSL service), US West has begun to roll out its own xDSL services in Arizona and Colorado. Hmmm.

But ISPs and public utilities commissions in some states have shoveled through the bull in US West's filings and have not stood idly by while US West dominates yet another telecommunications market. Unfortunately, other states have let US

West eliminate possibly the only xDSL competition, by allowing US West to eliminate the public offering of LADS circuits without even a hearing.

THE FIGHT IN COLORADO

Here in Colorado, thanks to a few active ISPs, MCI, the Public Utilities Commission, and, of course *Boardwatch Magazine*, US West was not allowed to eliminate this potentially competitive service without a good fight. In fact, US West was not allowed to eliminate the LADS circuits at all. At a December 18 hearing, the administrative law judge assigned to the case by the Commission ruled that US West cannot grandfather existing LADS circuits, or stop offering the circuits to new customers. Representatives and lawyers from the PUC staff, MCI Communications, *Boardwatch Magazine*, and Carl Oppedahl, a patent lawyer in Summit County, Colorado, offered testimony and cross examination in opposition to US West's application and advice letter. Two ISP owners, Janet Coursey and James Hinsdale of AccNet, offered comments on ISP use of and demand for the LADS circuits.

The judge ruled that US West failed to prove that another telecommunications "provider offers or provides functionally equivalent service...." to LADS, as required by Colorado law (C.R.S. §40-15-206(1) for you legal eagles). US West's application and advice letter were permanently suspended and canceled. Melissa O'Leary, a lawyer representing US West, said that US West filed an exception to the judge's decision. If US

A Patent Lawyer's Perspective

By Carl Oppedahl

As a patent lawyer in Summit County, Colorado, I was affected by the US West effort to eliminate the LADS tariff. I want to be able to use LADS to extend my office's Internet connectivity to the homes of the lawyers in the firm. But one of the homes is under construction and won't be completed until after the date that US West proposes to cut off the tariff. So I became an "intervenor," following arcane COPUC procedures to get standing to cross examine witnesses in the hearing. My hope was to help in the effort to keep LADS available as a service for future customers including myself. I also created a small web page (www.panix.com/~oppedahl/lads) to try to build grass-roots support for LADS in the fourteen states served by US West.

Most of these types of proceedings have only two parties — the telco and the PUC staff — because nobody else bothers to apply to be an intervenor. It would have been better if some ISPs had intervened in this action, but the problem is that the rules are so complicated that you really need to hire a lawyer to speak for you, and very few lawyers ever do this kind of work. I had never done this before and am grateful I was only representing myself!

Luckily for the ISPs of Colorado, there was one other intervenor, MCI. And also luckily for the ISPs, the Colorado PUC staff came out strongly in the pro-LADS direction. ♦

West's exception is rejected, the Commission will adopt the judge's decision by operation of law.

OTHER STATES

US West filed some type of application or notice to eliminate the LADS circuits in 12 of the 14 states where it does business, with mixed results. Below is a quick look at the status of US West's efforts in each state (besides Colorado):

ARIZONA - Jim Fisher, an Executive Consultant with the Utilities Division of the Arizona Corporation Commission, said that US West has not filed to eliminate LADS circuits.

IDAHO - The application was filed in May of 1997, approved, and made effective June 1.

IOWA - The application was filed June 4, and withdrawn on August 27 due to objections by ISPs and other current LADS customers.

MINNESOTA - According to a Minnesota Public Utilities Commission representative, US West has not filed to eliminate LADS circuits.

MONTANA - The LADS service was not regulated, so US West did not need PUC approval to eliminate the circuits. LADS were no longer offered after June 1.

NEBRASKA - The application was filed on May 13, approved and made effective on June 1.

NEW MEXICO - The application was filed on April 28, and after an October 17 hearing, was approved.

NORTH DAKOTA - The LADS service was not regulated, so US West did not need PUC approval to eliminate the circuits. LADS were no longer offered after June 1.

OREGON - The application was filed June 4, and withdrawn on August 27. As of the time of this writing, no other information was available.

SOUTH DAKOTA - The LADS service was not regulated, so US West did not need PUC approval to eliminate the circuits. LADS were no longer offered after June 1.

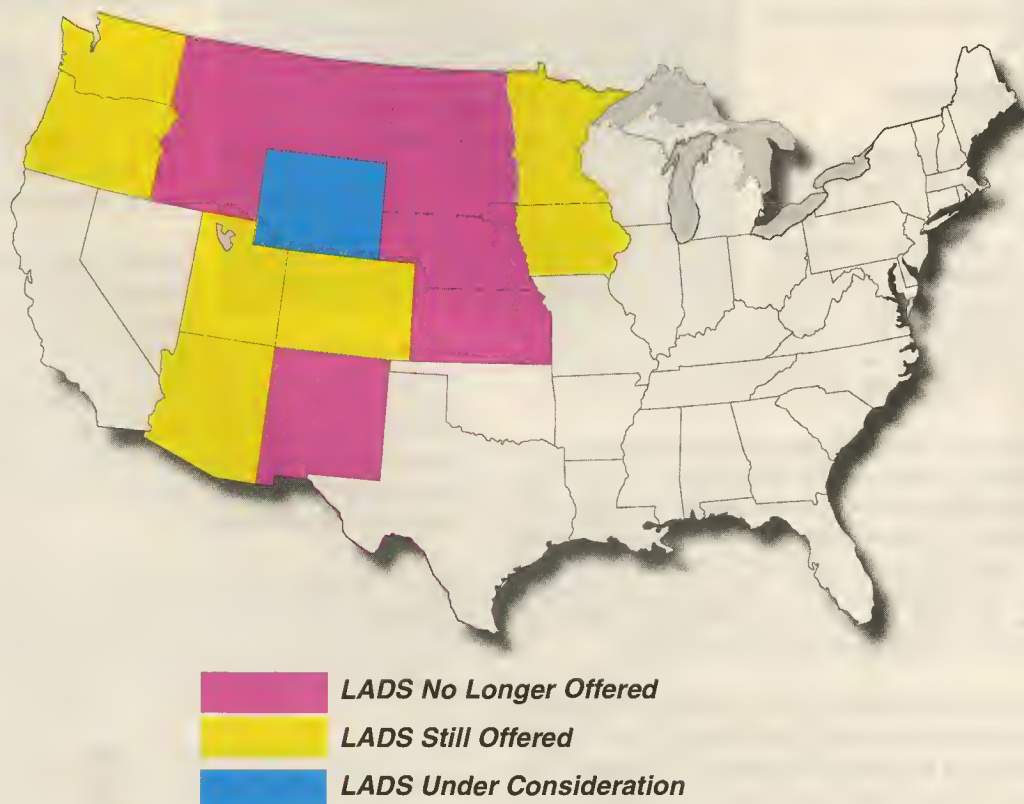
UTAH - The application was filed in May and is currently under suspension. A representative of the Utah Public Service Commission said the application will not be acted upon unless US West submits such a request.

WASHINGTON - The application was filed in May and withdrawn on September 17. As of the time of this writing, no other information was available.

WYOMING - The application was filed on May 23. A hearing was held on July 9, and a separate docket was opened to determine the Commission's jurisdiction to regulate the service. No hearing is scheduled.

So now you know, the rest of the story. ♦

LADS Status in US West States



Virtual Carriers— Voice over Frame Relay

by Frank Ohrtman



Most of today's telecommunications entities are buoyed by the assumptions that scarce infrastructure can be shared to offer premium priced services, voice generates most of the traffic, circuit-switched means are the *only* way of transmitting this traffic, and that a telecommunication structure can only be constructed and maintained by some gargantuan economy and a 20-year, double digit growth rate in the volume of data traffic. Many data types that can now transmit voice over private networks are more efficient at voice transfer than the PSTN, making it possible for the owners of those networks to compete with telcos worldwide.

FIRST AND FOREMOST

It is first important to clearly state the business case for voice over private WANs. User interest in voice over Frame Relay is primarily financial. The technology reduces the need for a separate voice network used for intra company phone calls. The cost of voice over Frame Relay has been estimated to be as low as half a cent per minute compared to 5 cents per minute for bulk deals with long-haul carriers.

Assume that the owner of a wide area network has had a good experience replacing its long-distance toll carrier with its private network. Inter office voice calls are placed through a PBX that is connected to a Frame Relay access device (FRAD) that packetizes the voice. The packets are then transported over the WAN to the desired destination office where they are processed in reverse order through the receiving FRAD and PBX. The company has cut its long-distance costs dramatically.

Like most private networks, this costs a good deal of money to build and maintain. The owners of the network know that the system is operating at as little as 20 percent of capacity. They are also aware of other firms that have offices in the same cities served by its private network. The owner of the private

network offers to carry the voice traffic of these other firms for a fee that works out to be considerably lower than that offered by long-distance carriers. The quality proves acceptable to the consumers.

The result is a win-win scenario in which the owner of the private network acquires another revenue stream that at least pays for the maintenance of its network and may fund the acquisition of improved hardware and greater broadband (i.e. T-1 upgrade to T-3) services. As the experiment succeeds, the firm is approached by a telecommunications brokerage firm that weds the owners of private data networks with firms whose long-distance calling patterns are within the network served by that private data network.

The owner of the private network transporting long-distance voice as data acquires two more clients. One of the new clients has offices in cities not served by the owner of the private network. The additional cities are then served by using a virtual private network (VPN), which connects the local loops by way of the Internet. The owner of the private network eventually builds wide area networks in other parts of the world and connects them with a virtual private network. After a few short years, the firm that started its carrier operations by transporting its own inter office voice traffic as data becomes a sub-contracted international voice carrier.

The broker that brought the additional clients has since leased space on other private networks and has assisted in the installation of the hardware necessary to transport voice as data over a growing collection of wide area networks. Eventually the broker becomes known as a "virtual telco," which doesn't own so much as a single router. By leasing space on other networks and reselling to businesses at rates that are unattainable by conventional circuit-switched voice networks, the broker has amassed a large fortune and a grateful client base.

The main turnaround involves adding voice to existing data network requirements. New switching technology supports the routing of voice and data over public or private Frame Relay networks.

One real world example of voice over Frame Relay is the Hanil Bank of Korea, which recently purchased

advanced Frame Relay equipment for its Seoul, Korea-based headquarters and over 450 bank locations domestically and internationally. Service that had previously cost the company \$120,000 annually cost only \$ 40,000 with Frame Relay. A bonus was the fact that interoperability could convince customers that Frame Relay was mature enough to trust for both data and communications.

Coastal Construction Products connects its Jacksonville, Florida, headquarters to six remote offices using Frame Relay. In 1995 came the decision to add voice to the fractional T-1 and 64 Kbps data lines. The company spent about \$ 55,000 for equipment and recouped its investment in 18 months.

Some major international telecommunications carriers have realized the cost savings of voice over Frame Relay, as opposed to the costly conventional circuit-switched voice net-

"What we need is a data network that can easily carry voice, instead of what we have today, a voice network struggling to carry data."

**Reed Hundt,
former FCC Chairman**

works. Telecom New Zealand has signed an agreement with Telecom Italia's Australian service provider subsidiary, TMI Australia, under which it will interconnect its global Frame Relay network with that of TMI enabling it to offer services to 70 countries.

SERVICE AND APPLICATIONS

The Netrix 2210, for example, offers prices for a digital PBX connection that start at \$750 per channel. System pricing ranges from approximately \$13,000 for 12 channels to \$18,000 for a system that carries 24 voice channels (equal to a full T-1).

When 12 circuits carry five hours of voice calls per day at 5 cents per minute, the monthly telco charge runs roughly \$3,600 (assuming 20 working days a month). But at half a cent per minute, the charge drops to just \$360 a month — for a savings of \$3,240 per month. The 2210 could pay for itself in less than a year.

TECHNOLOGY

It used to be there was only the public switched telephone network (PSTN) and it worked the way the Bell System said it would. In other words, there has been only one way of transmitting voice over this network: 8-bit bytes, 8,000 times a second, for an aggregate rate of 64 Kbps. The entire telephone network is designed around this rate.

However, if you wish to send voice over a data network, you can encode and send it at any rate, including the rate of slowest underlying network link. The recipient must have the right decoder running its intelligent terminal.

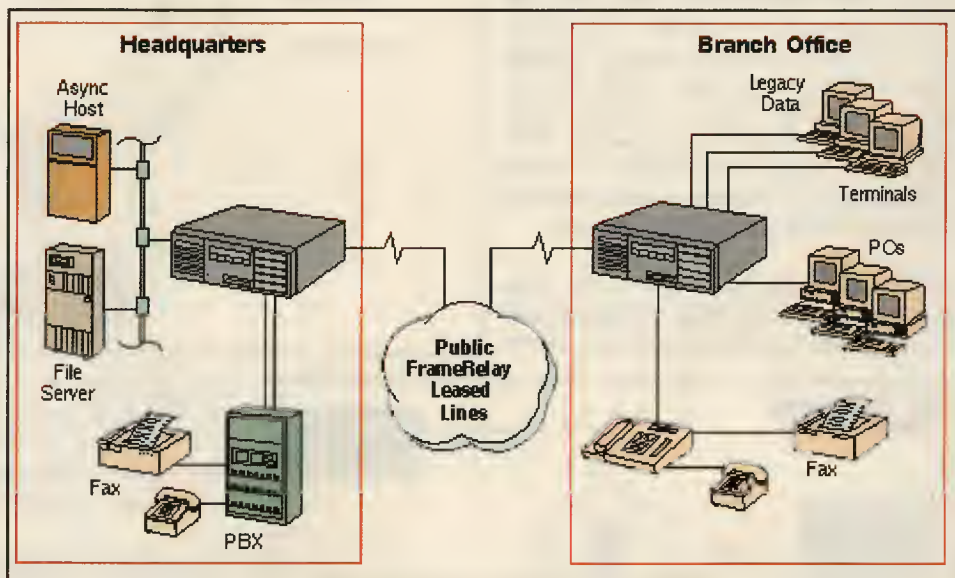
Packet voice via the Internet, Frame Relay and Asynchronous Transfer Mode (ATM) has become a reasonable alternative for "any to any" dialing, regardless of whether both parties are using the packet service. That is, it provides the same function as POTS (plain old telephone service). Voice over Frame Relay is applicable for corporate infrastructure while some work remains to be done regarding interoperability and universal connection.

Frame Relay, for the present, is probably the most widespread protocol with the greatest potential for transmitting voice as data over private and virtual private networks. The term Frame Relay can be used to describe:

- An interface specification — rules for connecting to the public network.
- A switching technology — a means of routing frames through the network.
- A public service — offered by carriers for WAN connectivity.

Frame Relay defines a method for effectively routing frames of information across a wide area network. Frame Relay is a packet-switching protocol based on X.25 and ISDN standards. Unlike X.25 however, which assumes low speed, error-prone lines and must perform error correction, Frame Relay assumes error-free lines. By leaving the error correction and flow control functions to the end points (customer premise equipment), Frame Relay has lower overhead and can move variable-sized data packets at much higher rates.

Like its predecessor X.25, Frame Relay is a shared service allowing multiple customers to use the wide area network simultaneously. Several corporations connecting their remote locations would be an example. Frame Relay has become very popular as it offers solid benefits such as cost savings, improved network performance, and network consolidation.



Public Switched Telephone Network

Inefficient voice network
Fixed transmission protocol
"Intelligent network" centralized control
Circuit switched

Voice Over Private Data Network

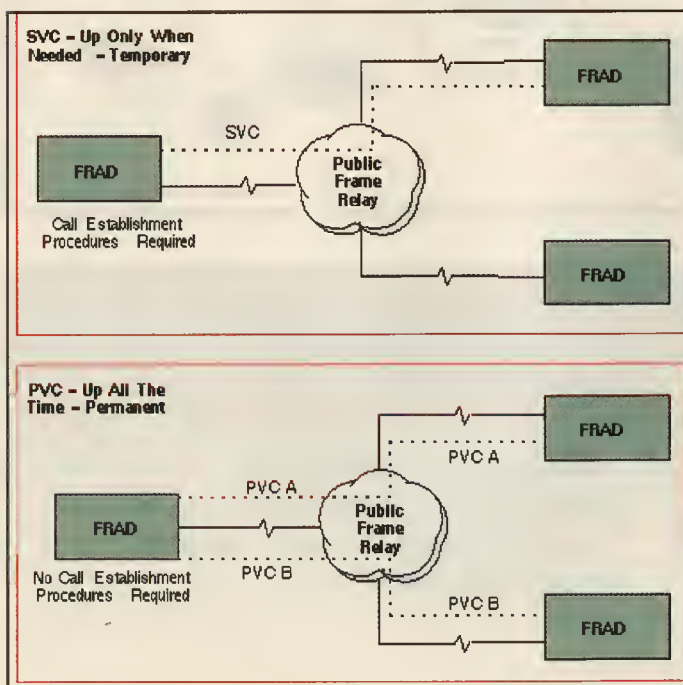
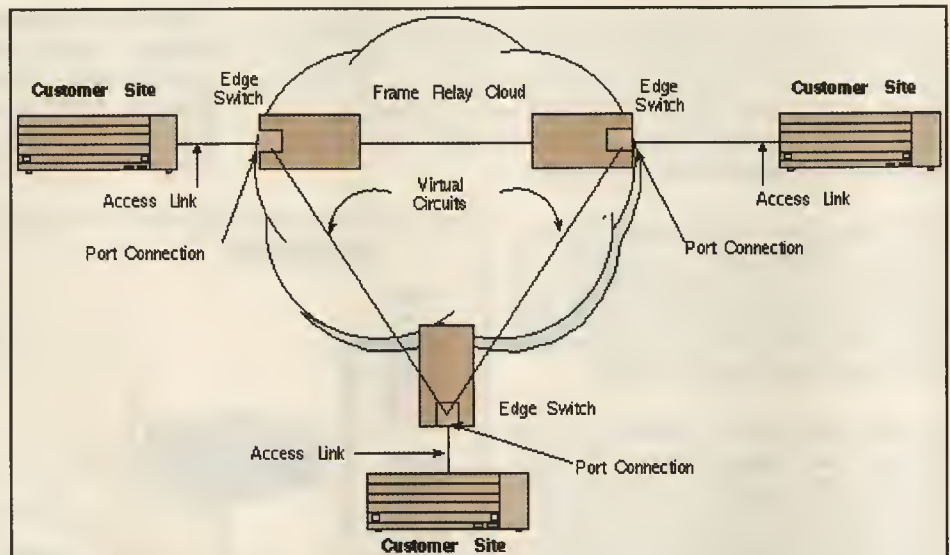
Efficient data network
Flexible transmission protocol
"Stupid network" no one controller
Packet switched

EVOLVING STANDARDS

1. **FRF.1.1** Frame Relay User-to-Network Implementation Agreement, January 1996
2. **FRF.3.1** Multiprotocol Encapsulation Implementation Agreement, June 22, 1995
3. **FRF.12** Frame Relay Fragmentation Implementation Agreement, 1997
4. **ITU G.711** Pulse Code Modulation of Voice Frequencies, 1988
5. **ITU G.723.1** Dual Rate Speech Coder for Multimedia Communications Transmitting at 5.3 & 6.3 Kbps, March 1996
6. **ITU G.726** 40, 32, 24, 16 Kbps Adaptive Differential Pulse Code Modulation (ADPCM), March 1991
7. **ITU G.727** 5, 4, 3 and 2 bits Sample Embedded Adaptive Differential Pulse Code Modulation, November 1994
8. **ITU G.728** Coding of Speech at 16 Kbps Using Low-Delay Code Excited Linear Prediction, November 1994
9. **ITU G.729** Coding of Speech at 8 Kbps using Conjugate Structure — Algebraic Code Excited Linear Predictive (CS-ACELP) Coding, March 1996
10. **ITU G.764** Voice Packetization — Packetized voice protocols, December 1990

Each location gains access to the Frame Relay network through a Frame Relay access device. FRADs are assembler/disassemblers that package data into Frame Relay packets. Currently, vendors sell integrated hardware that combines traditional FRAD with routing, switching, and multiplexing gear. The Frame Relay link itself cost about the same as the former leased-line did. A router with Frame Relay capability is one example. The FRAD is connected to the nearest POP through an access link, usually a leased line. A port on the edge switch provides entry into the Frame Relay network.

FRADs assemble the data to be sent between locations into variable-sized Frame Relay frames, like putting a letter



in an envelope. Each frame contains the address of the target site, which is used to direct it through the network to its proper destination. Once the frame enters the shared network cloud or backbone, any number of networking technologies can be employed to carry it.

The path defined between the source and the destination sites is known as a virtual circuit. While a virtual circuit defines a path between two sites, no backbone bandwidth is allocated to that path until the devices need it. Frame Relay supports both permanent and switched virtual circuits. Frame Relay service providers typically charge for each of these paths.

A permanent virtual circuit (PVC) is a logical point-to-point circuit between sites through the public Frame Relay cloud. PVCs are permanent in that they are not set up and torn down with each session. They may exist for weeks, months or years and have static end points. The PVC is available for transmitting and receiving all the time and, in that regard, is analogous to a leased line.

By supporting several PVCs simultaneously, Frame Relay can directly connect multiple sites, through a single physical con-

nection. (In contrast, a leased-line network would require multiple physical connections, one for each site.) A data link connection identifier (DLCI), assigned by the service provider, identifies each PVC. A header in each frame contains the DLCI, indicating the address of the virtual circuit the frame should use.

The real benefit of Frame Relay comes from its ability to dynamically allocate bandwidth and handle bursts of peak traffic. When a particular PVC is not using backbone bandwidth, it is available to another PVC.

Fully integrating a corporate network means consolidating voice, fax, data and LAN traffic to a single network. Frame Relay allows full consolidation of your network by efficiently carrying voice and fax along with data.

It is necessary to dispel a myth concerning voice over Frame Relay — the myth that it doesn't work. When Frame Relay was first introduced, the transmission infrastructure was also in transition. Upgrades made the facilities more reliable so error detection and correction did not have to be performed by the network.

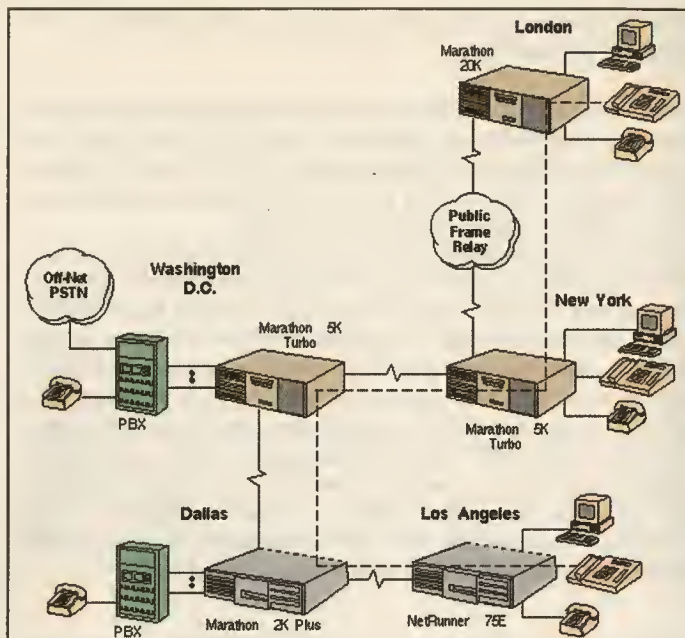
Today, the model for public networks is one with a Frame Relay interface and often a cell relay backbone. These backbones are high speed — E-3 (34 Mbps), T-3 (45 Mbps), some even up to 600 Mbps — providing very fast transmission through the clouds. They are based upon technologies such as ATM or Switched Multimegabit Data Service (SMDS), which provide fast, predictable delivery of time-sensitive information. In addition, networking efficiency is very high, allowing for the transport of time-sensitive voice and fax, video, Internet, and LAN traffic.

Of primary importance is the quality of the voice and amount of bandwidth it needs. Toll-quality voice, the same as what you hear over the public telephone network, is required. This means the voice must have good audio and very little delay. Secondly, voice should use a minimum of bandwidth to allow for other types of traffic. Digitized voice compression techniques make this possible.

In today's public telephone network, the spoken words (analog) are converted to digital and then travel through the network. Pulse Code Modulation (PCM), the name of this technique, is the benchmark for toll-quality voice. It requires 64 Kbps of bandwidth which, while optimized for speech quality, is not very efficient for integrated networking applications. Newer compression techniques, such as Adaptive Differential Pulse Code Modulation (ADPCM) and Low-Delay Code Excited Linear-Prediction (LD-CELP), have been developed to provide good quality voice while requiring minimum bandwidth.

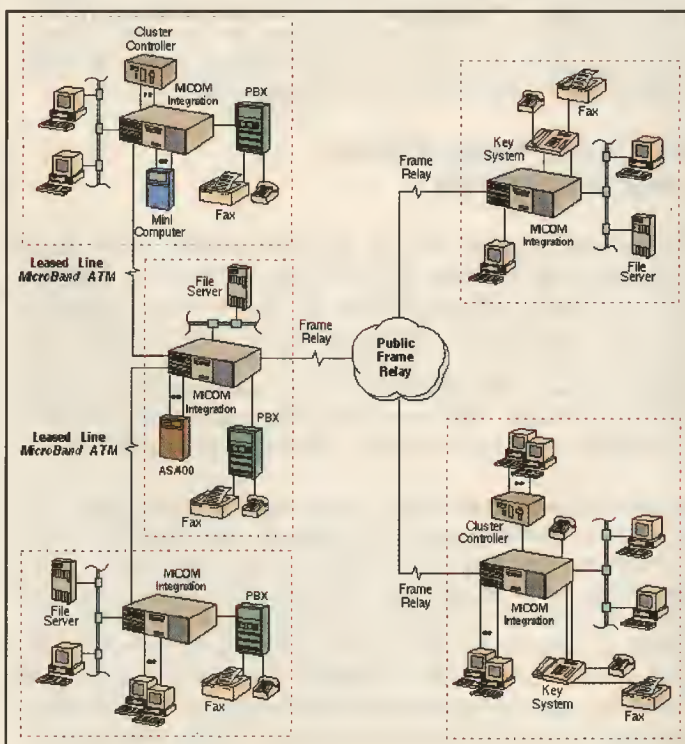
Speech, like data, is not contiguous; it comes in bursts as each person talks. Since it is bursty, voice can be further compressed and quality increased through silence suppression and background noise regeneration.

Through silence suppression, the silence is not digitized, freeing up bandwidth on the voice channel. The bandwidth then can be used by speech or data from another channel. Silence suppression reduces the bandwidth requirement to an average of approximately 3.5 Kbps during a conversation.



With voice switching technology, the user can build a multi-site integrated network with the same full connectivity of the logical mesh network, independent of the actual network structure. This means that even if there is no direct link between sites, the compressed digitized voice can be directed through multiple FRADs to reach its destination without leaving the network. A network with voice switching performs like a simple distributed voice switching system or PBX.

Fax traffic between sites can also be carried over the Frame Relay network. Automatic fax demodulation will detect a fax. Instead of trying to handle a modulated (analog) signal that would require PCM at 64 Kbps to digitize, this technique determines what kind of fax modulation scheme is being used and converts it back to its digital format. The digital signal typically requires only 9.6 Kbps or less. The receiving channel



then re-modulates the fax signal for transmission to the receiving fax machine.

A network that minimizes costs and maximizes performance sometimes requires a combination of public Frame Relay and private leased-line hybrid networking. With a hybrid network, the user does not know if a phone conversation is being transported over the leased line or Frame Relay.

Virtual private networks are a way of allowing secure private network traffic to flow between two physically separated locations across the Internet. A virtual telco would use a VPN to link a network serving the Singapore office with one serving the U.S. office, for example. They work by using a firewall at each location that runs special encrypting VPN software. This software accepts requests (network packets) from the internal network A (the LAN in your Singapore office) which is destined for network B (a server in your U.S. subsidiary), the firewall encrypts the packet, sends it across the Internet to the firewall on network B, which then validates its authenticity, decrypts it and passes it onto the internal network.

The current standard for voice compression is ITU G.729. This International Telecommunications Union algorithm's full name is Conjugate-Structure Algebraic-Code-Excited Linear-Predictive (CS-ACELP) Coder. It delivers an exceptionally high level of voice quality. The G.729 standard provides toll-quality voice and uses only 8 Kbps of bandwidth. This is a definite requirement for voice over Frame Relay.

G.729A is a cousin of G.723, the compression scheme pushed earlier (as part of H.324) by Intel and Microsoft for videoconferencing over PSTN. G.729A was developed because G.723 needs significant computing — about 30 percent of a standard Pentium 100's power. G.723 also has a longer frame size — 30 ms — resulting in 90- to 100-ms latencies. With a smaller frame size of 10 ms and only 30- to 35-ms delays, G.729A became a simpler and higher-quality choice for voice applications. (Latency is 3 to 3 1/2 times frame size.)

POLICY AND REGULATIONS — A BRAVE NEW WORLD

The Telecommunications Act of 1996 provides little direct guidance as to whether the FCC has authority to regulate voice over data services. Section 230 states a policy goal "to preserve the vibrant and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by federal or state regulation." None of these sections, however, specifically addresses the FCC's jurisdiction over the Internet or other data networks.

Section 251(b)(1) reads that, regarding ILECs, each has "the duty not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of its telecommunications services." Section 251(c)(4) also compels ILECs "to offer for resale at wholesale rates any telecommunications service that the carrier provides at retail to subscribers who are not telecommunications carriers; and (b) not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of such telecommuni-

cations service..." In summary, the hands of the ILECs are tied should they attempt to limit voice over data networks.

Most importantly, there exists no U.S. regulation covering the conversion of voice from an analog signal into digital packets, transporting those packets intra LATA, converting them back into an analog signal and delivering those packets as voice communications. No elected representative would want to commit political suicide by favoring an incumbent LEC or IXC with any regulation that would appear to be a continuation of the century old protection of monopolistic telcos. This is especially true when a hike in consumer expenses regarding long-distance traffic is at stake, particularly when the consumers are Fortune 500 firms.

DEMISE OF TELEPHONE COMPANIES AS WE KNOW THEM?

Arie DeGeus, the former Shell Group planning head, in his master work, *The Living Company* (ISBN: 087584782X), examined thousands of companies to discover what it takes to adapt to changing conditions. He found that the life expectancy of the average company was only 40 years. This would indicate that the telephone company culture is in advanced old age, preserved largely by government protections.

It is conceivable that, given the relative low cost of doing so, a network owner can craft custom services precisely to the customer's needs. Long-distance voice over Frame Relay, virtual private networks, video teleconferencing, and distance learning are just a few of the possibilities a network provider could offer. To date, most RBOCs have not been renowned for offering a smorgasbord of services. The key to survival in the beginning of the next century will be exceptional flexibility. Century-old telco bureaucracies will experience difficulties maintaining their customer bases and their very survival may become a very real challenge. ♦

*The key to survival in the
beginning of the next century
will be exceptional flexibility.*

Frank Ohrtman is currently pursuing an MS in telecommunications in the interdisciplinary telecommunications program, University of Colorado College of Engineering, and plans to graduate in May of 1998. He is currently director of sales for CyberRamp Technologies in Boulder, Colorado, an Internet telephony firm.



To register for a FREE
Netscape SuiteSpot book,
come by our booth 628.



Having trouble keeping **everyone** connected?

Try the next generation of Internet Server solutions for ISPs from DIGITAL and Netscape.

As a fast-growing ISP, email is the most visible service you offer. When your server isn't available, it can spell doomsday for your business. Why take that risk? Step up to DIGITAL's rugged 64-bit Alphaserp platforms and Netscape's SuiteSpot Messaging server software to support new subscribers, offer new services, and maintain a competitive advantage in your markets!

- *Proven 64-bit performance to handle your growing subscriber base*
- *Minimum service interruptions for a level of availability other ISPs can only dream about*
- *The perfect platform for new value-added services like Web hosting, search, and Internet telephony services — premium services that generate the revenues flat email rates cannot!*

Best of all, with DIGITAL by your side, it's easy to migrate to these high-performance email server packages. Call 1-800-DIGITAL to learn more or visit our Web site at www.digital.com/internet/isp

digital

COME SEE US AT ISPCON BOOTH # 620

Get a jump on
your competition **today!** Call **1-800-DIGITAL**
(1-800-344-4825)



Boom Times in South Africa

by Richard Stiennon

The shakeout is upon us. ISPs are being swallowed up at record rates while many more succumb to the tremendous pressure put on them by the telcos and established giants like AOL and MSN.

Wait a minute. What's wrong with the foregoing statements? They could be attributed to any lead Internet story in any publication in the world. Yet, they are totally false! Regular readers of *Boardwatch* belong to a secret society that has inside information on a deep, dark secret; to wit, the Internet service business is thriving. Services that started in the last eighteen months are profitable while growing at rates exceeding 10 percent a month.

A recent survey, reported on by those excellent folks at NUA, Ltd. (www.nua.ie) shows for the first time a decrease in subscribers at 28 of the largest ISPs. Quoting from the newsletter *Interactive Services Report*:

Catherine Olson, senior editor of the newsletter, attributed the lull to the fact that people are looking for better service from ISPs and are moving to the smaller ones for better service, "We're rolling into a new phase of Internet usage. People have had time to play around through free trials with a couple services and now they have a better sense of what they want."

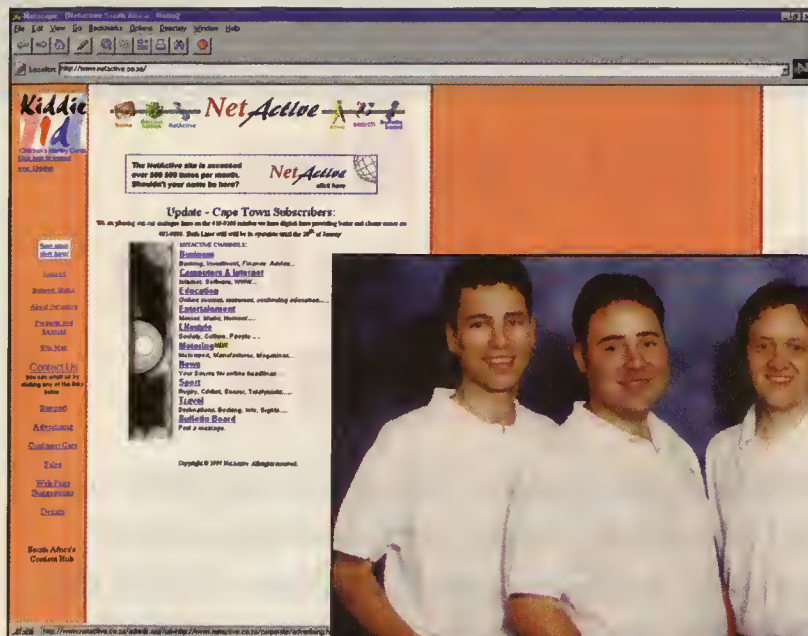
Anyone who has started an ISP in a rural area or opened a POP in the sticks knows about the "AOL windfall." The first customers to stampede to the new service are disgruntled AOL subscribers. They are heavy Internet users tired of long-distance charges, busy signals, and lack of phone support. In short, ISPs around the United States and the world are still growing and prospering. There are new ones every day and

there are no signs of a "shakeout." Look for more doomsayers the next time a major online service reports unusually high "turnover" or a loss in number of subscribers. It's only the telcos and cable companies proving once again that they can't adapt to the ISP model of customer care and feeding.

There seems to be as many models for starting an ISP as there are entrepreneurs with the belly burn to get into this burgeoning business. Over the years I have participated in several of these start-ups, from the general purpose Rust.Net to the security-minded Netrex, to the regional IAG/CICNet. Through my ISP Business Plan web pages, I have had contact with hundreds of ISP start-ups. I have detected no slow down in start-up activity. As a matter of fact, the number of serious ventures seems to be on the rise as CLECs and system integrators get into the action. (There are over 3,000 CLECs in the United States, by the way). I have collected dozens of success stories, from the basement operation of Nick Serifin, in Rochester Hills, Michigan (Eaglequest), to NetActive, the modem importer in South Africa.

NetActive (www.netactive.co.za) is the seventh largest ISP in South Africa, out of a field of 88. In business for less than two years, the company already has 7,200 subscribers, adding 1,000 each month. That's more than 14 percent growth every month. There are 60 NetActive employees operating its six POPs.

The two founding members, Jonathan Hackner and Jonathan Staskun, started five years ago by setting up a BBS using PC board as a hobby. "At that time, modems were extremely expensive in South Africa — a 2400 bps modems would set you back around US\$700. We had seen in some U.S. magazines that modems were available at 40 percent cheaper than those avail-



From left to right: Paul Bacher, Jonathan Hackner, Jonathan Staskun and Lawrence Brick

able locally. So we started importing cheap modems in order to make it cost effective for subscribers to join our service."

They quickly became popular among the systems integrators as a supplier of low cost modems. Today they sell over 3,500 per month operating as modem distributor Mr. Modem. When they decided to get into the ISP business less than two years ago, it was easy for the two Jonathans to set up a Linux box, Livingston PortMaster and 10 USR Courier modems. Within weeks of launching their ISP business, the two were signing up 200 customers a month. Jonathan Hackner says "We had seen that bundling a starter kit with our modems had worked, so we made our first Starter Kit, using Quarterdeck's Mosaic and started bundling it with our modems."

A word about the environment in which NetActive is operating: There is no such thing as toll-free, local calling in South Africa. There is a charge of about \$1 per hour. Hackner estimates the ISP's cost to provide 64 Kbps of bandwidth at US\$4,000 per month. There is a monopoly telco in South Africa called Telkom, which also control most of the Internet backbone in South Africa. On October 14, the South Africa Regulatory Authority (SATRA) ruled that Internet provision was a "value-added service" and therefore a freely competitive service. Telkom is attempting to block this ruling.

Gregory Massel, an Internet consultant and ISP owner in the Durban area called CyberSurf (www.csurf.co.za) reports that International connectivity is presently approximately 27 Mbps between South Africa and the United States, and approximately 2 Mbps to Europe. Most of this capacity is supplied via satellite, although a large portion is supplied via the SAT2 fiber-marine cable.

A glance at www.ispmap.org.za will show that NetActive is dually homed to BBN and Global One. It has a total of 704

Kbps upstream bandwidth. The company serves its dial-up customers with 300 modems in offices in Bloemfontein, Cape Town, Durban, Johannesburg, Port Elizabeth and Pretoria. In addition, the company has an established registered base of over 800 resellers, and intends to grow this dramatically over the next 18 months. If the number of modems looks low, don't forget that

the lack of free local calling means users try to minimize the time they are logged in. This means that ISPs in South Africa can use higher user/modem ratios than those used by ISPs in the United States. NetActive's platform of choice for dial-up is the Livingston PortMaster PM3.

Soon after taking off, Lawrence Brick and Paul Bacher were brought on board to take over marketing and sales from the founding engineers. Brick points out that in a young and growing

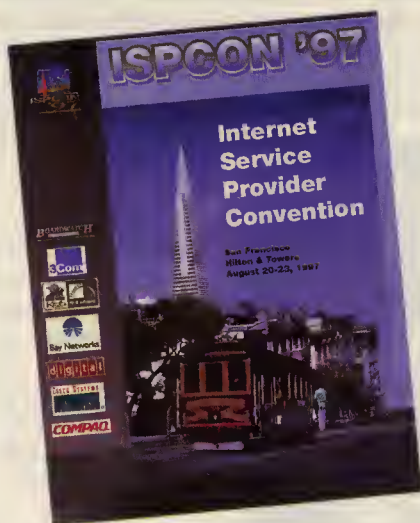
industry such as the Internet, a company is needed that is also dynamic and fast paced. "The average age of the executive directors of NetActive is 29, and the average age of the employees of the company is 25," says Brick. "There is an energetic vibe in the office, which encourages innovation and enthusiasm — we like to encourage this."

By packaging its products and services for business customers, NetActive is able to make inroads in this lucrative market. It is also developing better starter kits. NetActive's Ultimate Starter Kit is specially designed for newcomers to the Internet. Its "Learn Internet Explorer Quick & Easy," from Individual Software, is a complete interactive multimedia guide to Microsoft's Internet Explorer web browser and the Internet.

NetActive is just one of thousands of ISPs around the world that are growing and maturing at a rate that indicates the long-predicted "shakeout" is just not happening. As the "ISP business" turns into the "ISP industry," there will be increased activity in the mergers and acquisitions of ISPs. But, there will continue to be fresh start-ups and spin-offs every day in every market. Don't mistake the flurry of buyouts and acquisitions as a sign of a shakeout. It is just the conservative money and late comers making a play to enter what is now perceived as a safe bet. ♦

.....

Richard Stiennon founded Rust.Net in 1994. He has helped numerous ISPs grow their business. He maintains the ISP Business Plan page at www.stiennon.com/ISP He can be reached at richard@stiennon.com.



Did You Miss Any Sessions From ISPCON '97?

ISPCON has emerged as THE gathering point for Internet service providers, web hosting services, and national backbone operators from all over the world. The Resource Link

recorded most of the 180 educational sessions from this year's Internet Service Providers Annual Convention. Below is a list of the most popular sessions. Many more sessions are available at www.the-resource-link.com.



ISPCON '97 Top Ten Package

Future of the Internet... <i>Rob Kolstad</i>	697-8
Third Annual Guerilla Marketing Seminar	697-141
Connecting Small Business to the Internet... <i>Phil Becker</i>	697-77
Two Dozen Ways to Bring Cash to Your ISP... <i>David Silver</i>	697-10
Becoming One of the Best Run ISPs in the Industry... <i>Mario Perry</i>	697-75
How ISPs Can Take Advantage of the FCC's \$2.25 Billion Fund	697-110
Internet 101: Packets, Routers, LANs and WANs... <i>Robert Laughlin</i>	697-23
Internet 201: Clients and Servers... <i>Robert Laughlin</i>	697-36
Mining the Small to Mid-Size Business Market Profitability	697-6
Sure Fire Ways to Market Your ISP Services - 21 Mistakes to Avoid	697-40

Order Package #697T

Only \$79


ALSO Available from ISPCON '97

Session Title	Tape #
ADSL Installation- The Real Deal... <i>Curt Benton; Mike Pippin</i>	697-100
AltaVista- Lessons of Running a Web Site That Really Scales!	697-82
Another View of Domain Name Administration... <i>Eugene Kashpureff</i>	697-172
Approaches to Customer Management... <i>Bill Gassman</i>	697-139
Architecting for an ISP for Scalability & Flexibility... <i>Martin Leufrey</i>	697-97
Backbone Providers- The Future... <i>David Jemmett</i>	697-12
Boardwatch Backbone Measurements... <i>Jack Rickard</i>	697-127
Broadband ISP Networks: Managing the Bandwidth Explosion	697-59
Building a Small ISP from Scratch Using Linux... <i>Bob Bevil</i>	697-63
Building Service Differentiation with End-to-End QoS... <i>Bob Packer</i>	697-89
Buying and Selling ISP Companies... <i>Gary Schine</i>	697-167
Buying or Selling an ISP - A Case Study	697-15
Bypassing the Telephone Industry... <i>Brian Reid</i>	697-41
Communications Revolution and IP Telephony... <i>Elon Ganor</i>	697-151
Considerations in Designing a Web Site Development Agreement	697-99
Corporate Outsourcing Services - ISP Opportunities/Challenges	697-180

Session Title Cont...

Session Title Cont...	Tape #
Cost Effective Wireless Service for ISPs... <i>H Maurice France</i>	697-136
Creating New Internet Profit Centers from VAS... <i>Sean O'Sullivan</i>	697-64
Current State of E-Commerce ... <i>Richard Lancaster</i>	697-83
Database Driven Hosted Web Sites... <i>Christopher Ryan</i>	697-104
Dealing with Ma Bell Panel	697-109
Deploying DSL in 1997 Panel Discussion	697-173
Dial Access - Strategies for Setting up a New POP... <i>Pete Davis</i>	697-58
Domain Name System- How it Works... <i>Phil Becker</i>	697-47
Domain Registration Services - Tips and Tricks... <i>Eric Eden</i>	697-101
DSL Technology... <i>Frank Wiener</i>	697-9
Emerging High-End "Next Generation" Internet Services	697-60
Experiences with xDSL - One Year Later... <i>John Seamons</i>	697-126
Fax Over IP: A Collision of Worlds... <i>Maury Kauffman</i>	697-24
Funding Growth- Financing and Capital Alternatives for ISPs	697-29
Getting the Most from DNS Now and into the Future	697-68
High Speed Wireless Internet Access Gets Real... <i>Andrew Siegel</i>	697-96
History and Philosophy of MindSpring... <i>Charles Brewer</i>	697-93
Hot Mail Topics for ISPs - IMAP and Disconnected SMTP	697-103
How ISPs Can Leverage MultiDSL Technologies... <i>Richard Sekar</i>	697-66
How To Get More Customers Who Will Pay You More Money - Part I	697-191
How to Get More Customers Who Will Pay You More Money - Part II	697-162
How to Market Differentiated Services... <i>Bob Gaughan</i>	697-86
How Vulnerable Is Your Network?... <i>Andrew MacBrien</i>	697-76
Hurdles on the Way to the Full Service Internet... <i>George Favaloro</i>	697-158
Improving Dial-Access Performance and Reliability... <i>Dan Hession</i>	697-146
Internet - Key Business Tool for Improving Customer Service	697-54
Internet Access - Issues for Managing Bandwidth	697-37
Internet at the FCC... <i>Robert Cannon</i>	697-53
Internet Commerce for ISPs... <i>Tom Richardson</i>	697-31
Internet Commerce Solutions for ISPs... <i>Patrick O'Haren</i>	697-165
Internet Measurement - How and Why	697-80
Internet Service Levels & Rate-Based Pricing with IP Switching	697-69
Internet Telephony... <i>Mordy Rothberg</i>	697-7

Tape

☒☐ Regular☐ Priority*

Express*

Subtotal Amount

\$4.50

\$14.50

\$24.50

\$26-50

5.50

15.50

25 50

\$51-75

6.50

16.50

26.50

\$75-10

7.50

17.50

27.50

[illegible]

FAX #



CONSUMMATE WINSOCK APPS

by Forrest Stroud

THE END OF AN ERA...AND THE BEGINNING OF ANOTHER

The applications reviewed here and many more are available at Stroud's Consummate Winsock Apps List, www.stroud.com and <http://cws.internet.com>.

Forrest Stroud currently works in College Station, Texas, as a web developer for Mecklermedia Corporation. He recently graduated, with honors, from The University of Texas at Austin. The Information Systems and Data Communications Management major enjoys spending what little free time he has with his wife Joanne and the "zoo" — an ever-expanding collection of dogs and cats that currently consists of a Dalmatian pup (Svoda Pop), a chocolate Lab cross (Roemer), a German Shepherd pup (Marius), and a pair of rascally kittens (Odie Pez and Bo Miggy). Animal lovers can check out pictures of the pets on Stroud's home page at <http://home.sprynet.com/sprynet/neuroses>.

Every once in a while an event of such importance occurs that we're forced to step away from what we're doing and take some time to reflect upon its significance. In '97 two such events occurred for me — the first being the tragic death of Princess Di and the second being the surprising retirement of Dean Smith. So much has been said about the former that I'll pay my respects with a word of silence, but for the latter I did want to share a word or two before returning to the Net software scene.

The winningest coach in college basketball history and arguably the greatest coach ever announced his retirement on October 9, surprising fans and foes alike. As a lifelong Tar Heel fan and Smith admirer, I wanted to take an opportunity to express my appreciation and thanks for the 36 years of service that Smith gave to UNC and for the unforgettable memories we as fans had the privilege of sharing.

UNC basketball will carry on, but there will never be another coach like Dean Smith. Here's to hoping for a long and healthy life after the game for coach Smith. And here's to hoping that Dean's successor, Coach Gut (Bill Guthridge), can lead the first team of A.D. (After Dean) Heels into the promised land of San Antonio come the madness of March and return with the National Championship in hand...

CoolCat follows in the footsteps of previously released Anawave Software Internet apps. Like the Gravity

news reader, the WebSnake web agent, and the now defunct Postmark mail client, CoolCat enters an already crowded segment of the Internet software scene with one goal in mind — to be the most powerful and efficient client of its kind. With such a lofty goal despite the fact that the client has yet to be officially released, don't be too quick to dismiss CoolCat as yet another copy-cat client designed with the sole intention of making money off the continued popularity of the Internet and without really offering any value-added services that set it apart from the competition. But anyone who has taken more than a perfunctory look at the other Anawave clients will know that if any company can make real on such a claim, Anawave can.

Anawave's latest offering is a strong representative of the new breed of web editors being developed and released by the major players of the Internet scene. Most of these companies have conceded the lower end of the market to text editors like TextPad and NotePad Pro and have instead focused on the higher end of web design. Editors like Front Page 98, Dreamweaver, HomeSite 3.0, and HotDog Pro are complete web packages that offer a collection of tools, wizards, and everything else you need to create, publish, and maintain high-quality dynamic web sites using the latest technology. In other words, the new breed of editors make it possible to develop the type of advanced sites that would be impossible to create using a conventional text or HTML editor. CoolCat joins these tools on the leading edge of web design technology and does its part to push the boundaries even farther than before.

CoolCat supports nearly every type of web technology available from the earliest of standardized HTML tags to the latest proprietary tags and features from Netscape and Internet Explorer. The client covers the entry-level web tags — everything up to the HTML 3.2 standard — with efficiency and ease of use that serve throughout as the app's principal trademarks. Wizards and step-by-step editors help with design tasks like tables, forms, frames, and client side image maps. These are just the beginning of CoolCat's support for the first-generation of web design. CoolCat also offers extensive help documentation and an excellent online tutorial for guiding you through the process of creating a basic web site that employs the time-proven standards of HTML 3.2 and earlier. The tutorial doesn't end with its coverage of basic web sites, though, and thankfully, neither does the rest of CoolCat.

Anawave CoolCat

Desc:	An impressive new editor with the latest and greatest tools for creating dynamic web sites
Pros:	Excellent set of features and support for the latest web technology; efficient, easy to use, and inexpensive
Cons:	Relatively slow start-up, lacks some of the competition's more advanced scripting and coding features
Location:	ftp://ftp02.anawave.com/pub/coolcat.exe
Status:	Free beta evaluation release. Commercial software - \$99.95
Platforms:	Windows 95/NT
Company:	Anawave Software, Inc.
Web site:	http://www.anawave.com/coolcat

WAIT LIFTER.



Lift the "World Wide Wait" ... and bulk up on revenues.

Here's how it works. With Spectrum FastLane™, your dial-up customers can enjoy much faster downloads of rich Web graphics — without the hassle of additional client software or hardware. ♦ Will they want it? Absolutely. Will they pay you a small monthly premium for it? You bet they will. Just like they pay that little extra for a premium movie channel. ♦ How will your customers find out you have FastLane? Let them try it free for 30 days. Everyone wants to lift the burden of the "World Wide Wait". ♦ You can be the one to do it with FastLane, and become the biggest guy on the block. ♦ For a free demo, visit us at Booth #600 at ISPCON Spring '98 or call **1-800-419-4542**. For more information, see our website at **www.spectruminfo.com**.

FastLane™

SPECTRUM™
Information Technologies

CoolCat is also at the vanguard of web design, offering complete support for the proposed HTML 4 standard, WebTV tags, JavaScript and Java-based animations, Active Push Channels and the CDF standard, Cascading Style Sheets (CSS), ActiveX applets, Dynamic HTML, and much more. Again, efficiency and ease of use are at the core of the CoolCat client. Intuitive wizards and guides make creating advanced web site elements a straight-forward, relatively simple process. An extensive library of pre-written JavaScript applets allows you to implement special effects and functionality in your web pages and also helps you get started with coding your own applets. However, coding more advanced scripts and applets is best saved for an app like Macromedia Dreamweaver, which excels in this area.

CoolCat rounds out its impressive set of features with usability tools like an automatic syntax checker, a powerful multiple find and replace tool, a spelling checker, a link verification tool, site management and uploading tools, the WebSnake Jr. plugin for downloading web sites, bundled design animation and special effect applets, web site optimization via CoolCat's Download Stats and Optimizer tools, and customizable toolbar and interface elements. At just under \$100, CoolCat not only matches the competition feature for feature, but it does so with a price tag that is second only to the \$79 HomeSite 3.0. Despite its beta status, CoolCat is a complete web design package that is more than ready for prime time.

Microsoft Personal Web Server

Desc:	The entry-level sibling to Microsoft's commercial Internet Information Server
Pros:	Easy to set up and use, Active Server Page (ASP) support, price (freeware), excellent for serving small web sites and personal home pages
Cons:	No Unix version, lacks some of the more advanced features included with IIS, only runs on Windows 95/Windows NT Workstation
Location:	http://backoffice.microsoft.com/downtrial/optionpack.asp
Status:	Freeware (requires IE 4.01)
Platforms:	Windows 95/NT
Company:	Microsoft Corporation
Web site:	http://www.microsoft.com/iis/guide/pws.asp

Microsoft's Personal Web Server (PWS) is a scaled-down version of the commercial Internet Information Server (IIS) included with the Server edition of Microsoft Windows NT. Designed for Windows 95 and NT Workstation, PWS is a great entry-level web server that makes it easy to publish personal home pages, serve small web sites, and share documents on a local network. One key advantage to using PWS over IIS and similar high-end web servers is the client's ease of use. PWS is one of the best servers available for helping to get you up and running quickly. Wizards are included to guide you through setting up home pages and sharing files, and the PWS administrator reduces the complexity of actually running the web server itself. You can also use the familiar Explorer interface or PWS's Personal Web Manager to share directories, start and stop the server, and view web site statistics.

One of the best uses for PWS is as a platform for testing out web sites on your Windows 95/NT computers before hosting them on the Internet. This allows you to check the validity of links, scripts, and applications as well as to ensure that the overall organization of the site is functioning correctly. Once the site is ready to go live you can either continue using PWS to serve your web site or you can use Front Page to copy the web site developed on PWS over to IIS. PWS and IIS are packaged together as part of the freely downloadable Windows NT 4.0 Option Pack. Front Page (cws.internet.com/32html.html#frontpg) is a commercial web design client that must be purchased separately.

While PWS does lack some of the more advanced features found in IIS (most notably the Index Server, Certificate Server, and Microsoft Site Server Express tools), it does include support for Active Server Pages (ASP), script debugging, and many other important features found in its commercial sibling. One of these is the Internet Service Manager, a comprehensive administration tool used in IIS as part of the Microsoft Management Console. Additionally, PWS can develop transactional web applications using the Microsoft Transaction Server. Overall, while most large businesses will likely bypass Microsoft's Personal Web Server for the high-end Internet Information Server, PWS will remain one of best available options for individuals wanting to serve their own personal home pages and for small organizations needing to host their own web sites.

CDValet is another small but powerful substitute for the standard CD Player that is packaged with Windows 95 and NT. As with both DiscPlay (cws.internet.com/32audio.html#discplay) and Notify CD Player (cws.internet.com/32audio.html#cdnotify), CDValet offers the same features found in the standard CD player and adds many of its own. Two of the most important additions are Internet CDDb (CD Database) and Windows traybar support. The Internet CDDb is a repository of information on audio CDs that can be contacted using a standard Internet connection. The main database is mirrored by a multitude of servers throughout the world, allowing you to pick one that is geographically close to your location. The critical advantage that this free service provides is the ability to download the title, artist, and track information for audio CDs. This information

CDValet

Desc:	A solid CD player with Internet CDDb and multidisc random play support
Pros:	Solid collection of features; inexpensive; integrated CDDb, Windows traybar, and multi-disc random play support
Cons:	Lacks some of the more advanced features of DiscPlay, interface could be more attractive
Location:	http://www.ghlsoftware.com/CDValet.zip
Status:	Free 90 day evaluation. Shareware - \$9.95
Platforms:	Windows 95/NT
Company:	GHL Software
Web site:	http://www.ghlsoftware.com

Data Xchange

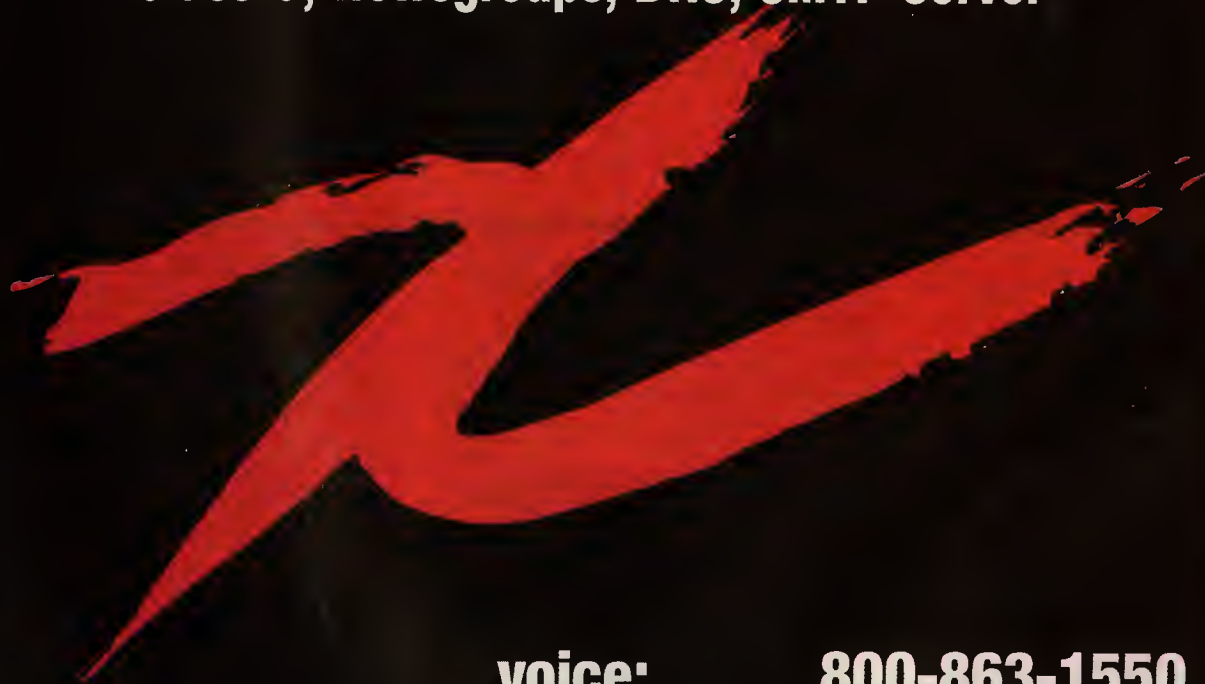
Network Inc.

**THE NATIONAL BACKBONE FOR BUSINESS
& PRIVATE VIRTUAL IP NETWORKS**

56K THRU T3

INCLUDING

Class C, Newsgroups, DNS, SMTP Server



voice: 800-863-1550

fax: 415-908-4851

information: sales@dx.net

<http://www.dx.net>

ISP Billing Software For Linux & NT

Email Invoices

Works With Radius

QuickBooks Import

WIN95 Interface

No "Per Account
Licensing"

Track Tech Support Calls

Batch Credit Cards...

ICVerify, PCAuthorize,
& PCCharge

FREE Demo At:
www.cyberacs.com

\$299

626-575-3339

can then be displayed by the CD player each time the CD is loaded. As a result, you're spared the time and effort of having to manually enter the information yourself. You can also upload your own CD information to the CDDB database so that others can benefit as well.

The second of CDValet's major features is its Windows traybar support. An icon resides in the traybar while CDValet is running that graphically portrays the status of the player. Moving your cursor over the icon will display the track and time information for the current CD and clicking on the right mouse button will pull up a menu of the program's major features and options. In addition to the traybar icon, CDValet offers a small control panel that displays additional information and gives you access to functions like stop, play, pause, resume, advance, and eject. Additional CDValet features include track programming capabilities, multidisc support, repeat and random play, and an integrated CD database manager that allows you to view, search, edit, and export entries in the CDValet database. CDValet also offers support for multidisc random play—a feature included with the standard Windows CD

Player but noticeably absent in both Notify CD Player and DiscPlay.

CDValet does lack Notify CD Player's click control capabilities as well as some of the more advanced features found in DiscPlay. These include DiscPlay's statistical features, automatic scheduling options, scripting abilities, and the favorites—like a custom play list feature. CDValet also lacks the extensive selection of options that both of the above clients offer. While intuitive, CDValet's interface is not nearly on par with those of DiscPlay and Notify CD Player in terms of overall attractiveness. Despite these minor shortcomings, CDValet is another solid and inexpensive (\$10) audio CD Player that serves as a must-have upgrade for the standard Windows CD Player. And if you own a multidisc drive, CDValet is an especially sweet deal considering that it is one of the few CD players available that offers support for multidisc random play. ♦

Modern development

PO Box 856
Newtown, PA 18940
(215) 579-0616

MODERN DEVELOPMENT HAS BEEN SUPPLYING HARDWARE AND SOFTWARE TO BBS SYSOPS AND ISPS FOR MORE THAN 8 YEARS. BESIDES OUR EXCELLENT REPUTATION, WHAT MAKES US DIFFERENT FROM OUR COMPETITORS IS THAT WE ACTUALLY OPERATE AN ISP SERVICE USING THE VERY SAME PRODUCTS WE SELL. WE DON'T JUST PUSH PRODUCTS THAT HAVE GOOD PROFIT MARGINS. INSTEAD, WE SELL ONLY THE SAME PRODUCTS THAT HAVE MADE OUR ISP SERVICE SUCCESSFUL, AND PROFITABLE. CALL US FOR PROVEN ADVICE!

ROCKETPORT

MULTIPOINT SERIAL CARDS

ROCKETPORT 4 W/CABLES:	\$ 225.00
ROCKETPORT 8 W/CABLES:	269.00
ROCKETPORT 16 ISA	339.00
ROCKETPORT 32 ISA	605.00

microcom

ISPORTE CHASSIS/POWER SUPPLY:	\$ 738.00
ISPORTE QUAD MODEM SLOT CARD:	250.00
ISPORTE OCTA MODEM SLOT CARD:	955.00
ISPORTE DUAL T1/PR1 SLOT CARD:	1365.00

Post.Office

100 MAIL ACCTS V3.1	\$ 395.00
100 MAIL LISTS V3.1	395.00
100 MAIL/LIST COMBO	595.00

NTP Software

RAS MANAGER FOR NT
\$ 395.00

*VISIT OUR WEBSITE FOR CURRENT PRICING! RAS MANAGER OUR PRICE- \$395.00

[HTTP://WWW.STARLIX.COM/MODERN](http://WWW.STARLIX.COM/MODERN)

SMART TIP #1

CONSIDER AN ASCEND PIPELINE 130 FOR YOUR NEXT T1 INSTALLATION. A POWERFUL, EASY TO USE ROUTER/CSU-DSU COMBINATION, THE P130 IS A GREAT ALTERNATIVE TO A FULL BLOWN CISCO 2501 AND AN EXTERNAL CSU-DSU. THE P130 CAN HANDLE FRAME RELAY AND POINT-TO-POINT T1, AND EVEN FRACTIONAL T1 PLUS ISDN BRI. IT IS ALSO VERY EASY TO CONFIGURE AND LEARN.

CHANCES ARE YOU DON'T NEED A CISCO 2501 AND IT'S \$ 3000.00 PRICE-TAG (INCLUDING CSU/DSU).

PIPELINE 130 OUR PRICE- \$1285.00

SMART TIP #2

IF YOU ARE RUNNING WINNT 4.0 RAS FOR YOUR ISP SERVICE, HAVE YOU EVER NOTICED HOW MANY DUPLICATE LOGONS THERE ARE? TRY NTP SOFTWARE'S NEW RAS MANAGER. IT ALLOWS YOU TO CONTROL DUPLICATE LOGONS IN ADDITION TO A VARIETY OF OTHER FEATURES. RAS MANAGER ALLOWS YOU TO SELL MULTIPLE APPEARANCES OF A LOGON NAME, PEAK TIME USAGE, AND HAS FANTASTIC REPORTING CAPABILITIES TOO. AND, UNLIKE OTHER SIMILAR PROGRAMS, RAS MANAGER IS SOLD ON A PER-SERVER BASIS, NOT PER-PORT BASIS! THIS MAKES FOR A MUCH LOWER PRICE!

**When your subscribers
hit the web,
your site is the first
thing they see.**



**So how are
you at first
impressions?**

As an Internet Service Provider, you want to give your subscribers the best web experience you can. Join the LookSmartSM Network and we'll help you turn your site into a content-rich gateway to the web that will keep subscribers coming back. All at no extra cost. The service carries your brand and content together with a nationally acclaimed web directory as well as great daily personal and local content from sources you can trust. The end-result is a site that lives up to your customers' expectations of the web as soon as they make their first connection. To find out how you can offer this great service to your users contact LookSmart today: (888) 799-3200 lsn@looksmart.com

COME SEE US AT ISPCON BOOTH # 248

LookSmart Network

www.looksmart.com/lsn/



POLICY FORUM

Rudolph Geist

UPDATE: THE FCC'S \$2.25 BILLION SCHOOL AND LIBRARY SUBSIDY PROGRAM

Rudolph J. Geist is a telecommunications attorney with the Washington, DC firm of Wilkes, Artis, Hedrick & Lane specializing in and helping to develop the area of Internet law. Mr. Geist represents ISPs in numerous matters before the FCC and state regulating bodies, including relations with other telecommunications providers, carrier certification, consultation regarding federal grant programs, federal, state and local taxation issues, First Amendment issues, domain name and IP address allocation issues, and mergers and acquisitions.

He also serves as counsel to the United States Internet Providers Association (USIPA), a national trade association established to facilitate fair government and telecommunications industry policies for ISPs. Mr. Geist can be contacted via e-mail at rgeist@wahlone.com, telephone at (202) 457-7345, or through USIPA's World Wide Web site at www.usipa.org.

In the July 1997 Policy Forum, we discussed a substantial new aspect of the federal Universal Service Fund (USF) program which makes available \$2.25 billion per year in subsidies to schools and libraries to help them offset the significant costs of obtaining advanced telecommunications services, including internal wiring, network equipment, and local-loop and backbone connections necessary for getting connected to the Internet. Under this new program, eligible public and private K-12 schools and libraries may apply for funding of advanced telecommunications services that are provisioned beginning January 1, 1998. By the time this article goes to press, the application process for the program should have officially begun, and schools and libraries would have begun filing their requests for proposals (RFPs) for services with the FCC's Schools and Libraries Corporation (SLC), the new entity created for the purpose of administering the program. These RFPs will be posted by the SLC on the specially created web site at www.neca.org. Before a contract may be signed with a provider, the RFP must be posted on the web site for four (4) weeks for competitive bids.

As outlined in the July 1997 Policy Forum, it is vital that ISPs participate in this program to ensure their competitive position vis-à-vis facilities-based telecommunications carriers. Schools and libraries make up a significant portion of the overall telecommunications services market and their demands for services will dramatically increase under this new program. ISPs need to browse the SLC's web site, find the schools and libraries in their service territories that are requesting services, and work with them on proposals.

Even the smallest ISP will likely find schools or libraries with RFPs that are manageable from a bidding standpoint. The important thing is for ISPs to bid on and secure as many school and library contracts as possible under the new program. If

ISPs don't act quickly, their facilities-based competitors will be left alone to win these contracts and corner the school and library telecommunications services market.

ISPs that are already serving a number of schools and/or libraries should be especially prepared to compete for the renewal of any existing contracts that are due to expire in the early part of the USF program, i.e., mid-January through March 1998. During the early part of the program, there will be a great degree of activity. Once an existing contract expires, if a school or library seeks to obtain subsidies under the USF on any new services, it will have to engage in the competitive bidding process and cannot simply sign a renewal or extension of the contract.

Further, many schools and libraries that have contracts in place that will not expire within the next few months will desire to obtain program subsidies to pay for services purchased under those contracts. Any contract

signed on or before July 10, 1997 will be grandfathered from the program's competitive bidding requirements for the full term of the contract. Thus, a school may apply for USF subsidies on services each year under the contract, without the contract ever having been competitively bid. For contracts signed between July 11, 1997 and the date on which the FCC's web site was officially ready for posting of RFPs (probably late January 1998, but this is not definite because at press time the date was still uncertain), the school may only apply for USF subsidies on services under that existing contract during the first year of the program. Subsidies under these contracts, however, may be obtained in subsequent years, if the FCC's competitive bidding requirements during subsequent years are followed and the existing contract is determined to be the best alternative.

Schools and libraries that apply for funding under the program must fill out an FCC Form 470

• The History and Business of NECA
• FAQ
• Board of Directors

• Schools & Libraries
• "Forms" & "Info"
• Rural Health Care
• "RHCC Forms"
• USAC

• Publications, Background Papers, Sites to see and more

• How to Contact NECA

Welcome to **NECA**

Administering Universal Service programs to keep telecommunications available and affordable.

NECA?

Information

100 South Jefferson Road
Whippany, NJ 07981
800 228-3397

© 1996 copyright by NECA. All rights reserved.
Comments and questions: wahlone@usipa.org

tions and interLATA information services markets. In some cases, the 1996 Act requires a BOC to offer services in these markets through a separate affiliate. In addition, the 1996 Act incorporates new terminology and definitions that differ from those the Commission had been using.

5. In light of the 1996 Act and ensuing changes in telecommunications technologies and markets, we believe it is necessary not only to respond to the issues remanded by the Ninth Circuit, but also to reexamine the Commission's nonstructural safeguards regime governing the provision of information services by the BOCs. Congress recognized, in passing the 1996 Act, that competition will not immediately supplant monopolies and therefore imposed a series of safeguards to prevent the BOCs from using their existing market power to engage in improper cost allocation and discrimination in their provision of interLATA information services, among other things. These statutory safeguards seek to address many of the same anticompetitive concerns as, but do not explicitly displace, the safeguards established by the Commission in the Computer II, Computer III, and ONA proceedings. We therefore issue this Further Notice to address issues raised by the interplay between the safeguards and terminology established in the 1996 Act and the Computer III regime. These 1996 Act-related issues were not raised in the Computer III Further Remand Notice. We therefore ask interested parties to respond to the issues raised in this Further Notice and, to the extent that parties want any arguments made in response to the Computer III Further Remand Notice to be made a part of the record for this Further Notice, we ask them to restate those arguments in their comments.

6. We note, in addition, that Congress required the Commission to conduct a biennial review of regulations that apply to operations or activities of any provider of telecommunications service and to repeal or modify any regulation it determines to be "no longer necessary in the public interest." Accordingly, the Commission has begun a comprehensive 1998 biennial review of telecommunications and other regulations to promote "meaningful deregulation and streamlining where competition or other considerations warrant such action." In this Further Notice, therefore, we seek comment on whether certain of the Commission's current Computer III and ONA rules are "no longer necessary in the public interest." To the extent parties identify additional Computer III and ONA rules they believe warrant review under the Act, we invite those comments as well.

7. Consistent with the 1996 Act, in this Further Notice we seek to strike a reasonable balance between our goal of reducing and eliminating regulatory requirements when appropriate as competition supplants the need for such requirements to protect consumers and competition, and our recognition that, until full competition is realized, certain safeguards may still be necessary. We want to encourage the BOCs to provide new technologies and innovative information services that will benefit the public, as well as ensure that the BOCs will make their networks available for the use of competitive providers of such services. We therefore seek comment in this Further Notice on, among other things, the following tentative conclusions:

- notwithstanding the 1996 Act's adoption of separate affiliate requirements for BOC provision of certain information services (most notably, interLATA information services), the Act's overall pro-competitive, deregulatory framework, as well as our public interest analysis, support the continued application of the Commission's nonstructural safeguards regime to BOC provision of intraLATA information services [43-59];
- given the protections established by the 1996 Act and our ONA rules, we should eliminate the requirement that BOCs file Comparably Efficient Interconnection (CEI) plans and obtain Common Carrier Bureau (Bureau) approval for those plans prior to providing new intraLATA information services [60-65];
- at a minimum, we should eliminate the CEI-plan requirement for BOC intraLATA information services provided through an Act-mandated affiliate under section 272 or 274 [66-72]; and
- the Commission's network information disclosure rules established pursuant to section 251(c)(5) should supersede certain, but not all, of the Commission's previous network information disclosure rules established in Computer II and Computer III [122]. We also generally seek comment on, among other things, the following issues:
- whether enactment and implementation of the 1996 Act, as well as other developments, should alleviate the Ninth Circuit's concern about the level of unbundling mandated by ONA [29-36];
- whether the Commission's definition of the term "basic service" and the 1996 Act's definition of "telecommunications service" should be interpreted to extend to the same functions [38-42];
- whether the Commission's current ONA requirements have been effective

in providing ISPs with access to the basic services that ISPs need to provide their own information service offerings [85-90];

- whether the Commission, under its general rulemaking authority, should extend to ISPs some or all section 251-type unbundling rights, which the Commission previously concluded was not required by section 251 of the Act [94-96]; and
- how the Commission's current ONA reporting requirements should be streamlined and modified [99-116].

8. As set forth in the 1998 appropriations legislation for the Departments of Commerce, Justice, and State, the Commission is required to undertake a review of its implementation of the provisions of the 1996 Act relating to universal service, and to submit its review to Congress no later than April 10, 1998. The Commission must review, among other things, the Commission's interpretations of the definitions of "information service" and "telecommunications service" in the 1996 Act, and the impact of those interpretations on the current and future provision of universal service to consumers, including consumers in high cost and rural areas. We recognize that there is a some overlap between the inquiry in this Further Notice about the relationship between the Commission's definition of the term "basic service" and the 1996 Act's definition of "telecommunications service," and the issues to be addressed in the Commission's report to Congress. Furthermore, we recognize that other aspects of this Further Notice also may be affected by the analysis in the Universal Service Report. We note that the inquiry in this Further Notice is primarily focused on the rules and terminology the Commission should be using in the context of its Computer II and Computer III requirements. We also note that the order in this proceeding will be issued after the Universal Service Report is submitted to Congress, and will thus take into account any conclusions made in that report.

II. BACKGROUND

A. Overview of Computer III/ONA and Related Court Decisions

9. We discussed in detail the factual history of Computer III/ONA in the Computer III Further Remand Notice. One of the Commission's main objectives in the Computer III and ONA proceedings has been to permit the BOCs to compete in unregulated enhanced services markets while preventing the BOCs from using their local exchange market power to engage in improper cost allocation and unlawful discrimination against ESPs. The concern has been that BOCs may have an incentive to use their existing market power in local exchange services to obtain an anticompetitive advantage in these other markets by improperly allocating to their regulated core businesses costs that would be properly attributable to their competitive ventures, and by discriminating against rival, unaffiliated ESPs in the provision of basic network services in favor of their own enhanced services operations. In Computer II, the Commission addressed these concerns by requiring the then-integrated Bell System to establish fully structurally separate affiliates in order to provide enhanced services. Following the divestiture of AT&T in 1984, the Commission extended the structural separation requirements of Computer II to the BOCs.

10. In Computer III, after reexamining the telecommunications marketplace and the effects of structural separation during the six years since Computer II, the Commission determined that the benefits of structural separation were outweighed by the costs, and that nonstructural safeguards could protect competing ESPs from improper cost allocation and discrimination by the BOCs while avoiding the inefficiencies associated with structural separation. The Commission concluded that the advent of more flexible, competition-oriented regulation would permit the BOCs to provide enhanced services integrated with their basic network facilities. Towards this end, the Commission adopted a two-phase system of nonstructural safeguards that permitted the BOCs to provide enhanced services on an integrated basis. The first phase required the BOCs to obtain Commission approval of a service-specific CEI plan in order to offer a new enhanced service. In these plans, the BOCs were required to explain how they would offer to ESPs all the underlying basic services the BOCs used to provide their own enhanced service offerings, subject to a series of "equal access" parameters. Thus, the CEI phase of nonstructural safeguards imposed obligations on the BOCs only to the extent they offered specific enhanced services. The Commission indicated that such a CEI requirement could promote the efficiencies of competition in enhanced services markets by permitting the BOCs to participate in such markets provided they open their networks to competitors.

11. During the second phase of implementing Computer III, the Commission required the BOCs to develop and implement ONA plans. The ONA phase was intended to broaden a BOC's unbundling obligations

beyond those required in the first phase. ONA plans explain how a BOC will unbundle and make available to unaffiliated ESPs network services in addition to those the BOC uses to provide its own enhanced services offerings. These ONA plans were required to comply with a defined set of criteria in order for the BOC to obtain structural relief on a going-forward basis. This means that a BOC would not need to obtain approval of CEI plans prior to offering specific enhanced services on an integrated basis. The Commission also required the BOCs to comply with various other nonstructural safeguards in the form of rules related to network disclosure, customer proprietary network information (CPNI), and quality, installation, and maintenance reporting. All of these nonstructural safeguards were designed to promote the efficiency of the telecommunications network, in part by permitting the technical integration of basic and enhanced services and in part by preserving competition in the enhanced services market through the control of potential anticompetitive behavior by the BOCs.

12. In 1990, the Court of Appeals for the Ninth Circuit vacated three orders in the Computer III proceeding, finding that the Commission had not adequately justified the decision to rely on (nonstructural) cost accounting safeguards as protection against cross-subsidization of enhanced services by the BOCs. In response to this remand, the Commission adopted the BOC Safeguards Order, which strengthened the cost accounting safeguards, and reaffirmed the Commission's conclusion that nonstructural safeguards should govern BOC participation in the enhanced services industry, rather than structural separation requirements.

13. During the period from 1988 to 1992, the Commission approved the BOCs' ONA plans, which described the basic services that the BOCs would provide to unaffiliated and affiliated ESPs and the terms on which these services would be provided. During the two-year period from 1992 to 1993, the Bureau approved the lifting of structural separation for individual BOCs upon their showing that their initial ONA plans complied with the requirements of the BOC Safeguards Order, and these decisions were later affirmed by the Commission.

14. After California I and the Commission's response in the BOC Safeguards Order, the Ninth Circuit in California II upheld the Commission's orders approving BOC ONA plans. In California II, the court concluded that the Commission had scaled back its vision of ONA since Computer III by approving BOC ONA plans before "fundamental unbundling" had been achieved. The court also concluded that the issue of whether implementation of ONA plans justified the lifting of structural separation, as the Commission had determined, was not properly before it.

15. In California III, the Court of Appeals for the Ninth Circuit partially vacated the Commission's BOC Safeguards Order. The California III court found that, in granting full structural relief based on the BOC ONA plans, the Commission had not adequately explained its apparent "retreat" from requiring "fundamental unbundling" of BOC networks as a component of ONA and a condition for lifting structural separation. The court was therefore concerned that ONA unbundling, as implemented, failed to prevent the BOCs from engaging in discrimination against competing ESPs in providing access to basic services. The court did find, however, that the Commission had adequately responded to its concerns regarding cost-misallocation by strengthening its cost accounting rules and introducing a system of "price cap" regulation; the court indicated its belief that these strengthened safeguards would significantly reduce the BOCs' incentive and ability to misallocate costs. The court also upheld the scope of federal preemption adopted in the BOC Safeguards Order.

16. In response to California III, the Bureau issued the Interim Waiver Order, which reinstated the requirement that BOCs must file CEI plans, and obtain Commission approval of those plans, to continue to provide specific enhanced services on an integrated basis. Also in response, the Commission issued the Computer III Further Remand Notice, which sought comment on the California III court's remand question regarding the sufficiency of ONA unbundling as a condition of lifting structural separation, and on the general issue of whether relying on nonstructural safeguards serves the public interest.

B. Overview of the 1996 Act

17. Since the California III remand and the Commission's release of the Computer III Further Remand Notice, the 1996 Act became law and the Commission has conducted a number of proceedings to implement its

provisions. These developments give us a fresh perspective from which to evaluate the Commission's current regulatory framework for the provision of information services. In this section, we describe some of the major provisions of the 1996 Act, and in later sections we examine how those provisions may affect our current rules.

1. Opening the Local Exchange Market

18. Various provisions of the 1996 Act are intended to open local exchange markets to competition. Section 251(c) of the Act requires, among other things, incumbent LECs, including the BOCs and GTE, to provide to requesting telecommunications carriers interconnection and access to unbundled network elements at rates, terms, and conditions that are just, reasonable, and nondiscriminatory, and to offer telecommunications services for resale. Section 253(a) bars state and local governments from imposing certain legal requirements that prohibit or have the effect of prohibiting the ability of any entity to provide any telecommunications service, and section 253(d) authorizes the Commission to preempt such legal requirements to the extent necessary to correct inconsistency with the Act. As a result, telecommunications carriers may now enter the local exchange market, and compete with the incumbent LEC, through access to unbundled network elements, resale, or through construction of network facilities.

19. In implementing section 251 of the Act, the Commission prescribed certain minimum points of interconnection necessary to permit competing carriers to choose the most efficient points at which to interconnect with the incumbent LEC's network. The Commission also adopted a minimum list of unbundled network elements (UNEs) that incumbent LECs must make available to new entrants, upon request. In Parts III and IV below, we discuss and seek comment on the potential impact of these unbundling requirements in more detail, both with respect to the issue in California III regarding the Commission's justification of ONA unbundling as a condition of lifting structural separation, as well as our overall reexamination of the Commission's current nonstructural safeguards framework.

2. BOC Provision of Information Services

20. The 1996 Act conditions the BOCs' entry into the market for many in-region interLATA services, among other things, on their compliance with the separate affiliate, accounting, and nondiscrimination requirements set forth in section 272. In the Non-Accounting Safeguards Order, we noted that these safeguards are designed to prohibit anticompetitive discrimination and improper cost allocation while still permitting the BOCs to enter markets for certain interLATA telecommunications and information services, in the absence of full competition in the local exchange marketplace. We also concluded in the Non-Accounting Safeguards Order that the Commission's Computer II, Computer III, and ONA requirements are consistent with section 272 of the Act, and continue to govern the BOCs' provision of intraLATA information services, since section 272 only addresses BOC provision of interLATA services.

21. Sections 260, 274, and 275 of the Act set forth specific requirements governing the provision of telemessaging, electronic publishing, and alarm monitoring services, respectively, by the BOCs and, in certain cases, by incumbent LECs. Section 260 delineates the conditions under which incumbent LECs, including the BOCs, may offer telemessaging services. We affirmed our conclusion in the Non-Accounting Safeguards Order that, since telemessaging service is an "information service," BOCs that offer interLATA telemessaging services are subject to the separation requirements of section 272. We further concluded that the Computer III/ONA requirements are consistent with the requirements of section 260(a)(2), and, therefore, BOCs may offer intraLATA telemessaging services on an integrated basis subject to both Computer III/ONA and the requirements in section 260.

22. Section 274 permits the BOCs to provide electronic publishing services, whether interLATA or intraLATA, only through a "separated affiliate" or an "electronic publishing joint venture" that meets certain separation, nondiscrimination, and joint marketing requirements in that section. The Commission found that there was no inconsistency between the nondiscrimination requirements of Computer III/ONA and section 274(d). We therefore found that the Computer III/ONA requirements continue to govern the BOCs' provision of intraLATA electronic publishing. We also noted that the nondiscrimination requirements of section 274(d) apply to the BOCs' provision of both intraLATA and interLATA electronic publishing.

Internet Service Providers,

Does Your Billing Department Look Like This?



You Need

RODOPI™

Billing/Management Software for ISP

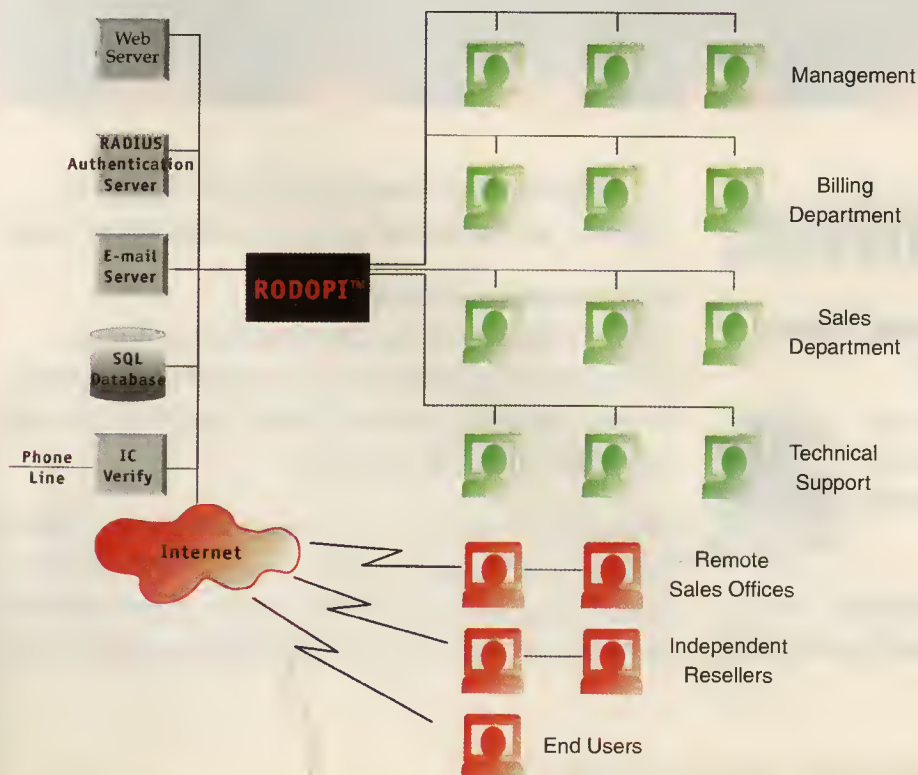
- TOTALLY WEB ENABLED
- INDUSTRIAL STRENGTH DATABASE
- UNLIMITED NUMBER OF USERS
- AUTOMATED ACCOUNTS SETUP
- UNIVERSAL ACCOUNT SUPPORT INTERFACE



Features Available with RODOPI 4.0

- SUPPORTS INTERNET ROAMING
- SUPPORTS INTERNET TELEPHONY
- OFFER NATIONWIDE DIAL-IN IMMEDIATELY THROUGH RODOPI CLUB™

...MANY MORE FEATURES.



On-Line Demo
www.rodopi.com

System Configuration:
MS Windows NT 4.0 server
MS SQL 6.5 server
MS IIS 3.0 or higher server

***intra* NET
Software**

a division of ABACUS America, Inc.
5266 Eastgate Mall,
San Diego, CA 92121
(888) 705-7485
www.rodopi.com

Someday,



...5,000 ISPs will migrate
to K56flex en masse.



...100 access
work together

Someday has arrived.

The PortMaster® 3. The integrated access server that optimizes any POP.

There's no need to wait any longer for a K56flex™ access server with unique operational advantages. The PortMaster 3 is here today, offering you:



"Virtual Chassis" Scalability. Multiple units can work together as a single virtual PortMaster 3

— enabling even large, multi-service sites to support all dial-in traffic over a single hunt group.

Unprecedented Reliability.

The PortMaster 3 runs Lucent Technologies ComOS®, the industry's most dependable remote access operating system. Which makes downtime virtually a thing of the past.

Plus, the PortMaster 3 can switch between all analog and ISDN calls over the same channelized T1 line, saving you the cost of separate chassis for each service and the waste of idle single-service ports.



**servers will
as one.**

**...and the only time you'll have to
touch a server is when you install it.**

**Livingston Enterprises is
now Lucent Technologies.**



As you may already know, Livingston Enterprises is now the Remote Access Business Unit of Lucent Technologies. Think of us as a small, entrepreneurial group inside a larger company — with the same dedicated people, innovative spirit, and responsive service that has always set Livingston apart ... now backed by the size, strength, and resources of a \$26 billion company with a peerless heritage of innovation. Being part of Lucent Technologies gives us access to important

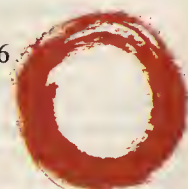
complementary technology, plus the resources to continue to offer you best-of-class solutions and industry-leading service.

For more details or to order the Lucent Technologies PortMaster 3, visit our Web site at www.livingston.com, or call toll-free:

888-737-5454

COME SEE US AT ISPCON BOOTH # 706

Lucent Technologies
Bell Labs Innovations



Computer III Further Remand Proceedings:

Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review -- Review of Computer III and ONA Safeguards and Requirements

Before the Federal Communications Commission
 Washington, D.C. 20554 In the Matter of Computer III Further Remand Proceedings:) CC Docket No. 95-20
 Bell Operating Company, Provision of Enhanced Services

1998 Biennial Regulatory Review --
 CC Docket No. 98-10 Review of Computer III and
 ONA Safeguards and Requirements)

FURTHER NOTICE OF PROPOSED RULEMAKING

Adopted: January 29, 1998 Released: January 30,
 1998 Comment Date: March 27, 1998 Reply Date: April 23, 1998

By the Commission: Commissioner Furchtgott-Roth issuing a separate statement.

TABLE OF CONTENTS	Paragraph
I INTRODUCTION	1
II BACKGROUND	9
A Overview of Computer III/ONA and Related Court Decisions	9
B Overview of the 1996 Act	17
1 Opening the Local Exchange Market	18
2 BOC Provision of Information Services	20
III CALIFORNIA III REMAND	24
A Background	24
B Subsequent Events May Have Alleviated the Ninth Circuit's California III Concerns	29
IV EFFECT OF THE 1996 ACT	37
A Basic/Enhanced Distinction	38
B Cost-Benefit Analysis of Structural Safeguards	43
1 Background	43
2 Effect of the 1996 Act and Other Factors	48
a Section 251 and Local Competition	49
b Structural Separation and the 1996 Act	52
C Comparably Efficient Interconnection (CEI) Plans	60
1 Proposed Elimination of Current Requirements	60
2 Treatment of Services Provided Through 272/274 Affiliates	66
a Section 272	66
b Section 274	71
3 Treatment of Telemessaging and Alarm Monitoring Services	74
4 Related Issues	75
D ONA and Other Nonstructural Safeguards	78
1 ONA Unbundling Requirements	78
a Introduction	78
b ONA Unbundling Requirements	80
c Effect of the 1996 Act	92
2 ONA and Nondiscrimination Reporting Requirements	99
a Introduction	99
b Annual ONA Reports	103
c Semi-Annual ONA Reports	108
d Nondiscrimination Reports	112
3 Other Nonstructural Safeguards	117
a Network Information Disclosure Rules	117
b Customer Proprietary Network Information (CPNI)	124
V JURISDICTIONAL ISSUES	130
VI PROCEDURAL MATTERS	133
A Ex Parte Presentations	133
B Initial Paperwork Reduction Act Analysis	134
C Initial Regulatory Flexibility Certification	135
D Comment Filing Procedures	137
VII ORDERING CLAUSES	141

I. INTRODUCTION

1. In the Commission's Computer III and Open Network Architecture (ONA) proceedings, the Commission sought to establish appropriate safeguards for the provision by the Bell Operating Companies (BOCs) of "enhanced" services. Examples of enhanced services include, among other things, voice mail, electronic mail, electronic store-and-forward, fax store-and-forward, data processing, and gateways to online databases. Underlying this effort, as well as our reexamination of the Computer III and ONA rules in this Further Notice of Proposed Rulemaking (Further Notice), are three complementary goals. First, we seek to enable consumers and communities across the country to take advantage of innovative "enhanced" or "information" services offered by both the BOCs and other information service providers (ISPs). Second, we seek to ensure the continued competitiveness of the already robust information services market. Finally, we seek to establish safeguards for BOC provision of enhanced or information services that make common sense in light of current technological, market, and legal conditions.

2. Under Computer III and ONA, the BOCs are permitted to provide enhanced services on an "integrated" basis (i.e., through the regulated telephone company), subject to certain "non-structural safeguards," as described more fully below. These rules replaced those previously established in Computer II, which required AT&T (and subsequently the BOCs) to offer enhanced services through structurally separate subsidiaries. On February 21, 1995, the Commission released a Notice of Proposed Rulemaking (Computer III Further Remand Notice) following a remand from the United States Court of Appeals for the Ninth Circuit (California III). The Computer III Further Remand Notice sought comment on both the remand issue in California III relating to the replacement of structural separation requirements for BOC provision of enhanced services with nonstructural safeguards, as well as the effectiveness of the Commission's Computer III and ONA nonstructural rules in general.

3. Since the adoption of the Computer III Further Remand Notice, significant changes have occurred in the telecommunications industry that affect our analysis of the issues raised in this proceeding. Most importantly, on February 8, 1996, Congress passed the Telecommunications Act of 1996 (1996 Act) to establish "a pro-competitive, de-regulatory national policy framework" in order to make available to all Americans "advanced telecommunications and information technologies and services by opening all telecommunications markets to competition." As the Supreme Court recently noted, the 1996 Act "was an unusually important legislative enactment" that changed the landscape of telecommunications regulation.

4. The 1996 Act significantly alters the legal and regulatory framework governing the local exchange marketplace. Among other things, the 1996 Act opens local exchange markets to competition by imposing new interconnection, unbundling, and resale obligations on all incumbent local exchange carriers (LECs), including the BOCs. In addition, the 1996 Act allows the BOCs, under certain conditions, to enter markets from which they previously were restricted, including the interLATA telecommunica-

Get Them Connected . . . FAST!

ISP ConnectTM



ISP Connect is the Complete Package for Connecting New Users. Registration & billing is fast and accurate. Customer accounts are easily administered and serviced.

Getting customers registered, billed, and serviced has never been easier.

- **Web Register** - Client/server electronic subscriber registration
- **Account Manager** - A fully configurable billing & account management system.
- **Net Commander** - A complete suite of internet access programs.

And more . . . Including ISP Value-Added programs:
"Best of the Web" online directory content affiliate program
Luckman Interactive Software Distribution Partners program

Call Today! 800-711-2676
www.ispconnect.com info@ispconnect.com



Luckman Interactive, Inc.

(Description of Services Requested) and Form 471 (Services Ordered), which are available for downloading on the SLC's web site. To apply for Internet services or any new telecommunications services or equipment, the school must also have an approved technology plan in place. ISPs interested in pursuit of this business opportunity should work with schools and libraries in their service territories to help them complete their technology plans and FCC applications. Although many schools have grant writers and information systems personnel, the USF requests can be very complex and necessitate assistance for their completion. Thus, ISPs should be fully informed about how the program works and should be prepared to provide whatever assistance is necessary to help a school obtain funding under the program.

With respect to the administration of this program, it appears that the early bird will get the worm. The FCC has decided to provide a 75-day filing window period for applications and contracts to be filed by schools and libraries for funding under the USF program. This period began on the effective date of the program, which was in late January (the exact date was not yet determined when this column went to press), when the application forms became available and the web site on which requests are posted was fully operational.

Applications with signed contracts filed during the 75-day filing window will be treated, for purposes of USF funding, as if they were filed simultaneously. If a school or library does not file both its certification application and a signed service provider contract with the Schools and Libraries Corporation within the 75-day filing window, its funding request will be placed in a processing line. The filing window provides an advantage to schools and libraries and their service providers that have already signed a contract prior to the effective date of the program, as these contracts are not required to go through competitive bidding, which could take a substantial amount of time.

Thus, ISPs pursuing schools and library accounts under this program need to move quickly to get bids on requests for proposals and contracts signed. ISPs must keep in mind that with respect to public schools, they may also have to satisfy local competitive bidding rules to get a contract finalized, which can take additional time.

A few other important notes on the program: This program applies to both public and private K-12 schools and public and private libraries so long as they are non-profit. In states where it is difficult to obtain public school and library contracts because they are banding together in district, county or statewide network consortiums, there may still be plenty of private schools and libraries that will be seeking subsidies under USF. Notwithstanding, ISPs should aggressively pursue every opportunity to bid on public and private individual and consortium applications.

ISPs obviously stand to benefit greatly from providing connections to schools and libraries under this program. ISPs can receive substantial new business and assist the schools in obtaining much-needed advanced Internet services and network equipment. As a provider for any school, the ISP generates further name recognition and goodwill for providing valuable Internet services.

Once an ISP signs a contract with a school or library and has completed the implementation of the contracted-for services, it will receive direct payment from the participating school or library only as to the percentage of the contract that is non-discounted. For example, if a school obtains a 50 percent subsidy, the school is only required to pay the provider 50 percent of the full contract price. The provider must then seek reimbursement of the remaining 50 percent from the FCC.

ISPs should be well prepared to properly complete these reimbursement requests and navigate the appropriate channels at the FCC to ensure that their requests are properly and timely processed by FCC staff. Getting paid for services provided is probably the most important aspect of the USF program from the provider's perspective, and possibly will be the most challenging. The FCC will be handling thousands of reimbursement requests and it will therefore be imperative that a provider have the ability to shepherd its requests completely and in a timely manner through the FCC.

On a final related note, the FCC has been required to report to Congress no later than April 10, 1998 on implementation of the provisions of the Telecommunications Act of 1996 relating

to universal service. There is concern by a number of powerful members of Congress that the FCC has abused its authority in allowing ISPs to participate in the Universal Service Fund. There is even more concern that ISPs are not required to make contributions into the fund based on their revenues, as are all telecommunications carriers. The FCC requested public comment on these issues and specifically on how it should respond to Congress on its implementation of universal service.

Many parties commented that the FCC must maintain its flexible regulatory approach to ISPs and information service providers. One very important issue under consideration in this proceeding regards the definitions of "information service", "telecommunications service" and "telecommunications carrier." Many on Capitol Hill and in the telecommunications industry believe that ISPs should be considered telecommunications carriers and the information services they provide should be considered telecommunication services for purposes of regulation and USF funding.

If these individuals get their way, ISPs will surely eventually be subject to a whole new can of worms with respect to regulation. If ISPs are viewed for purposes of legislative policy the same as current telecommunications carriers — local exchange carriers, wireless telephone carriers and long distance carriers — then the FCC may be forced to go against its current policy of an unregulated Internet.

ISPs that want to participate directly in support of the status quo should contact their local member of Congress and/or petition the FCC. Another option is to participate indirectly by joining a trade group that focuses on these issues. This is one of many pressing and ongoing policy issues facing ISPs of which they should be aware and in which they should be involved. ♦



23. Section 275 of the Act prohibits the BOCs from providing alarm monitoring services until February 8, 2001, although BOCs that were providing alarm monitoring services as of November 30, 1995 are grandfathered. Section 275 of the Act does not impose any separation requirements on the provision of alarm monitoring services. We concluded in the Alarm Monitoring Order that the Computer III/ONA requirements are consistent with the requirements of section 275(b)(1), and therefore continue to govern the BOCs' provision of alarm monitoring service. We discuss the potential impact of the Act's new requirements for BOC provision of certain information services on our cost-benefit analysis of structural versus nonstructural safeguards in more detail in Part IV.B below.

III. CALIFORNIA III REMAND

A. Background

24. As noted above, in California III, the Ninth Circuit reviewed the BOC Safeguards Order, in which the Commission reaffirmed its earlier determination to remove structural separation requirements imposed on a BOC's provision of enhanced services, based on a BOC's compliance with ONA requirements and other nonstructural safeguards. The court found that, in the BOC Safeguards Order, and in the orders implementing ONA, the Commission had "changed its requirements for, or definition of, ONA so that ONA no longer contemplates fundamental unbundling." Because, in the Ninth Circuit's view, the Commission had not adequately explained why this perceived shift did not undermine its decision to rely on the ONA safeguards to grant full structural relief, the court remanded the proceeding to the Commission.

25. In the Computer III Phase I Order, the Commission declined to adopt any specific network architecture proposals or specific unbundling requirements, but instead set forth general standards for ONA. BOCs were required to file initial ONA plans presenting a set of "unbundled basic service functions that could be commonly used in the provision of enhanced services to the extent technologically feasible." The Commission stated that, by adopting general requirements rather than mandating a particular architecture for implementing ONA, it wished to encourage development of efficient interconnection arrangements. The Commission also noted that inefficiencies might result from "unnecessarily unbundled or splintered services."

26. The Computer III Phase I Order required the BOCs to meet a defined set of unbundling criteria in order for structural separation to be lifted. In the BOC ONA Order, the Commission generally approved the "common ONA model" proposed by the BOCs. The common ONA model was based on the existing architecture of the BOC local exchange networks, and consisted of unbundled services categorized as basic service arrangements (BSAs), basic service elements (BSEs), complementary network services (CNSs), and ancillary network services (ANSs).

27. In the BOC ONA proceeding, certain commenters criticized the common ONA model. The commenters argued that the BOCs had avoided the Computer III Phase I Order unbundling requirements by failing to "disaggregate telecommunications facilities and services on an element-by-element basis." They urged the Commission to adopt a more "fundamental" concept of unbundling in the ONA context, by requiring the BOCs to unbundle facilities such as loops, as well as switching functions, inter-office transmission, and signalling. Specifically, they claimed that BSAs could be further unbundled; e.g., trunks could be unbundled from the circuit-switched, trunk-side BSA, so that ESPs could connect their own trunks to BOC switches.

28. In the BOC ONA Order, the Commission rejected arguments that ONA, as set forth in the Computer III Phase I Order, required unbundling more "fundamental" than that set forth in the "common ONA model" proposed by the BOCs. The Commission indicated that the Computer III Phase I Order anticipated that the BOCs would unbundle network services, not facilities, and determined that the ONA services developed by the BOCs under the common ONA model were consistent with the examples of service unbundling set forth in the Computer III Phase I Order. The Ninth Circuit, however, agreed with the view that the Commission's approval of the BOC ONA plans, and subsequent lifting of structural separation, was a retreat from a "requirement" of "fundamental unbundling."

B. Subsequent Events May Have Alleviated the Ninth Circuit's California III Concerns

29. In this section, we seek comment on whether the enactment and implementation of the 1996 Act, as well as other developments, should

alleviate the Ninth Circuit's underlying concern about the level of unbundling mandated by ONA. Section 251 of the Act requires incumbent LECs, including the BOCs and GTE, to provide to requesting telecommunications carriers interconnection and access to unbundled network elements at rates, terms, and conditions that are just, reasonable, and nondiscriminatory, and to offer telecommunications services for resale. Section 251 also requires incumbent LECs to provide for physical collocation at the LEC's premises of equipment necessary for interconnection or access to unbundled network elements, under certain conditions.

30. In its regulations implementing these statutory provisions, the Commission identified a minimum list of network elements that incumbent LECs are required to unbundle, including local loops, network interface devices (NIDs), local and tandem switching capabilities, interoffice transmission facilities (often referred to as trunks), signalling networks and call-related databases, operations support systems (OSS) facilities, and operator services and directory assistance. Additional unbundling requirements may be specified during voluntary negotiations between carriers, by state commissions during arbitration proceedings, or by the Commission as long as such requirements are consistent with the 1996 Act and the Commission's regulations. We note that the 1996 Act creates particular incentives for the BOCs to unbundle and make available the elements of their local exchange networks. For example, section 271 provides that a BOC may gain entry into the interLATA market in a particular state by demonstrating, *inter alia*, that it has entered into access and interconnection agreements with competing telephone exchange service providers that satisfy the "competitive checklist" set forth in section 271(c)(2)(B).

31. In our view, the unbundling requirements imposed by section 251 and our implementing regulations (hereinafter referred to as "section 251 unbundling") are essentially equivalent to the "fundamental unbundling" requirements proposed by certain commenters, and rejected by the Commission as premature, in the BOC ONA Order. These commenters asked the Commission to require the BOCs to unbundle network elements such as loops, switching functions, inter-office transmission, and signalling. As noted above, section 251(c)(3) and the Commission's implementing regulations require those elements, and others, to be unbundled by the BOCs, and by other incumbent LECs that are subject to the requirements of section 251(c). In addition, the type and level of unbundling under section 251 is different and more extensive than that required under ONA. This may be because one of Congress's primary goals in enacting section 251 — to bring competition to the largely monopolistic local exchange market — is more far-reaching than the Commission's goal for ONA, which has been to preserve competition and promote network efficiency in the developing, but highly competitive, information services market.

32. We recognize that, according to the terms of section 251, only "requesting telecommunications carriers" are directly accorded rights to interconnect and to obtain access to unbundled network elements. In that regard, the section 251 unbundling requirements do not provide access and interconnection rights to the identical class of entities as does the ONA regime, since these rights do not extend to entities that provide solely information services ("pure ISPs"). We also recognize that the development of competition in the local exchange market has not occurred as rapidly as some expected since the enactment of the 1996 Act.

33. We believe, however, that section 251 is intended to bring about competition in the local exchange market that, ultimately, will result in increased variety in service offerings and lower service prices, to the benefit of all end-users, including ISPs. Moreover, because local telecommunications services are important inputs to the information services ISPs provide, ISPs are uniquely positioned to benefit from an increasingly competitive local exchange market. There is evidence, for example, that carriers that have direct rights under section 251 will compete with the incumbent LECs to provide pure ISPs with the basic network services that ISPs need to create their own information service offerings, either by obtaining unbundled network elements for the provision of telecommunications services or through the resale of such services. As a result, incumbent LECs have an incentive to provide an increased variety of telecommunications services to pure ISPs at lower prices in response to the market presence of such competitors. Pure ISPs also could enter into partnering or teaming arrangements with carriers that have direct rights under section 251. In addition, ISPs can obtain certification as telecommunications service providers in order to receive direct benefits under section 251. We also note that many ISPs that currently provide both telecommunications services and information services will have the benefit of both section 251 unbundling as well as ONA.

34. For all these reasons, the fact that section 251's access and interconnection rights apply by their terms only to a "requesting telecommunications carrier" does not, in our view, change our conviction that the 1996 Act, as well as other factors, should alleviate the court's underlying concern in California III that the level of unbundling required under ONA does not provide sufficient protection against access discrimination. We seek comment on this analysis. In light of several recent court decisions bearing on these issues, we also ask commenters to address how the opinions of the Eighth Circuit Court of Appeals, including the decision regarding the recombination of unbundled network elements, as well as the decision of the United States District Court for the Northern District of Texas concerning the constitutionality of sections 271 through 275 of the Act, affect our analysis.

35. In addition to the changes engendered by the 1996 Act, there have been other regulatory and market-based developments that, we believe, also should alleviate the court's underlying concern about whether the level of unbundling mandated by ONA provides sufficient protection against access discrimination. For example, the Commission's Expanded Interconnection proceeding requires Class A LECs, including the BOCs and GTE, to allow all interested parties to provide competitive interstate special access, transport, and tandem switched transport by interconnecting their transmission facilities with the LECs' networks. Competing ISPs that utilize transmission facilities thus may provide certain transport functions as part of their enhanced services independent of the Computer III framework. These additional interconnection requirements, together with section 251 unbundling and the Commission's current ONA requirements, further help to protect ISPs against access discrimination by the BOCs. We seek comment on this analysis.

36. In addition, the level of competition within the information services market, which the Commission termed "truly competitive" as early as 1980, has continued to increase markedly as new competitive ISPs have entered the market. The phenomenal growth of the Internet over the past several years illustrates how robustly competitive one sector of the information services market has become. Recent surveys suggest that there are some 3,000 Internet access providers in the United States; these providers range from small start-up operations, to large providers such as IBM and AT&T, to consumer online services such as America Online. We believe that other sectors of the information services market have also continued to grow, as we observed in the Computer III Further Remand Notice. The presence of well-established participants in the information services market, such as EDS, MCI, AT&T, Viacom, Times-Mirror, General Electric, and IBM, may make it more difficult for BOCs to engage in access discrimination. For example, the California I court indicated that "the emergence of powerful competitors such as IBM, which have the resources and expertise to monitor the quality of access to the network, reduces the BOCs' ability to discriminate in providing access to their competitors." We seek comment on whether the sustained growth of competition within the information services market, including the continued participation of large information service competitors, serves to diminish further the threat of access discrimination and, consequently, the court's concern about whether the level of unbundling mandated by ONA is sufficient.

IV. EFFECT OF THE 1996 ACT

37. As detailed in the background section, the Commission issued the Computer III Phase I Order more than ten years ago, shortly after divestiture, and before the BOCs had obtained authorization from the MFJ court to begin to provide information services. Similarly, the implementation of ONA primarily took place between 1988 and 1992. Our objective is now, as it was then, to promote efficiency and increased service offerings while controlling anticompetitive behavior by the BOCs. We therefore reevaluate below the continuing need for these safeguards, in light of the 1996 Act and the significant technological and market changes that have taken place since the Computer III nonstructural safeguards were first proposed. This reevaluation is also part of the Commission's 1998 biennial review of regulations as required by the 1996 Act.

A. Basic/Enhanced Distinction

38. In the Computer II proceeding, the Commission adopted a regulatory scheme that distinguished between the common carrier offering of basic transmission services and the offering of enhanced services. The Commission defined a "basic transmission service" as the common carrier offering of "pure transmission capability" for the movement of information "over a communications path that is virtually transparent in terms of its interaction with customer-supplied information." The Commission further stated that a basic transmission service should be limited to the offering of transmission capacity between two or more

points suitable for a user's transmission needs. The common carrier offering of basic services is regulated under Title II of the Communications Act. In contrast, the Commission defined enhanced services as:

- Services offered over common carrier transmission facilities used in interstate communications, which employ computer processing applications that act on the format, content, code, protocol or similar aspects of the subscriber's transmitted information; provide the subscriber additional, different, or restructured information; or involve subscriber interaction with stored information.
- Enhanced services are not regulated under Title II of the Communications Act.

39. The 1996 Act does not utilize the Commission's basic/enhanced terminology, but instead refers to "telecommunications services" and "information services." The 1996 Act defines "telecommunications" as: the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received.

"Telecommunications service" is defined as: the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of facilities used.

The 1996 Act defines "information service" as the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications, and includes electronic publishing, but does not include any use of any such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service.

40. We concluded in the Non-Accounting Safeguards Order that, although the text of the Commission's definition of "enhanced services" differs from the 1996 Act's definition of "information services," the two terms should be interpreted to extend to the same functions. We found no basis to conclude that, by using the term "information services," Congress intended a significant departure from the Commission's usage of "enhanced services." We further explained that interpreting "information services" to include all "enhanced services" provides a measure of regulatory stability for telecommunications carriers and ISPs by preserving the definitional scheme under which the Commission exempted certain services from traditional common carriage regulation.

41. Consistent with our conclusion in the Non-Accounting Safeguards Order that "enhanced services" fall within the statutory definition of "information services," we seek comment in this Further Notice on whether the Commission's definition of "basic service" and the 1996 Act's definition of "telecommunications service" should be interpreted to extend to the same functions, even though the two definitions differ. We ask parties to address whether there is any basis to conclude that, by using the term "telecommunications services," Congress intended a significant departure from the Commission's usage of "basic services." As noted in the Non-Accounting Safeguards Order, we believe the public interest is served by maintaining the regulatory stability of the definitional scheme under which the Commission exempted certain services from traditional common carriage regulation. To the extent parties believe that "telecommunications services" differ from "basic services" in any regard, they should identify the distinctions that should be drawn between the two categories, describe any overlap between the two categories, and delineate the particular services that would come within one category and not the other.

42. In light of our conclusion in the Non-Accounting Safeguards Order that the statutory term "information services" includes all services the Commission has previously considered to be "enhanced," and our decision in this proceeding to seek comment on whether the statutory term "telecommunications services" includes all services the Commission has previously considered to be "basic services," we seek comment on whether the Commission hereafter should conform its terminology to that used in the 1996 Act. We ask commenters to discuss whether the Commission's rules, which previously distinguished between basic and enhanced services, should now distinguish between telecommunications and information services. For example, we ask whether the Commission's Computer II decision should now be interpreted to require facilities-based common carriers that provide information services to unbundle their telecommunications services and offer such services to other ISPs under the same tariffed terms and conditions under which they provide such services to their own information services operations.

B. Cost-Benefit Analysis of Structural Safeguards

1. Background

43. The Commission's goals in addressing BOC provision of information services have been both to promote innovation in the provision of information services and to prevent access discrimination and improper cost allocation. Because the BOCs control the local exchange network and the provision of basic services, in the absence of regulatory safeguards they may have the incentive and ability to engage in anticompetitive behavior against ISPs that must obtain basic network services from the BOCs in order to provide their information service offerings. For example, BOCs may discriminate against competing ISPs by denying them access to services and facilities or by providing ISPs with access to services and facilities that is inferior to that provided to the BOCs' own information services operations. BOCs also may allocate costs improperly by shifting costs they incur in providing information services, which are not regulated under Title II of the Act, to their basic services.

44. Under rate-of-return regulation, which allows carriers to set rates based on the cost of providing a service, the BOCs may have had an incentive to shift costs incurred in providing information services to their basic service customers. In 1990, the Commission replaced rate-of-return regulation with price cap regulation of the BOCs and certain other LECs to discourage improper cost allocation, among other things. Recently, the Commission revised its price caps regime to eliminate the sharing mechanism, which required price cap carriers to "share" with their access customers half or all their earnings above certain levels in the form of lower rates. This revision substantially reduces the BOCs' incentive to misallocate costs.

45. Since the adoption of Computer I in 1971, the Commission has employed various regulatory tools, including structural separation, to prevent access discrimination and cost misallocation, first by AT&T and then, after divestiture, by the BOCs, in providing information services. In Computer I, we imposed a "maximum separation policy" on the provision of "data processing" services by common carriers other than AT&T and its Bell System subsidiaries. We continued to impose structural separation on the provision of enhanced services by AT&T and its Bell System subsidiaries in Computer II, until we replaced structural separation with a system of nonstructural safeguards in 1986, in Computer III.

46. The Commission has long recognized both the benefits as well as the costs of structural separation as a regulatory tool. The Commission noted in Computer II that a structural separation requirement reduces firms' ability to engage in anticompetitive activity without detection because the extent of joint and common costs between affiliated firms is reduced, transactions must take place across corporate boundaries, and the rates, terms, and conditions on which services will be available to all potential purchasers must be made publicly available. Structural separation thus is useful as an enforcement tool and as a deterrent, because firms are less likely to engage in anticompetitive activity the more easily it can be detected. As for costs, the Commission recognized that structural separation increases firms' transaction and production costs, but did not agree with arguments presented at the time that structural separation reduces innovation.

47. The Commission similarly weighed the benefits and costs of structural separation in Computer III when, with the passage of time and the accumulation of experience, it replaced the Computer II structural separation requirements with a system of nonstructural safeguards. The Commission concluded in Computer III that the benefits of structural separation are not significantly greater than the benefits of nonstructural safeguards in preventing anticompetitive practices by the BOCs, and that structural separation imposes greater costs on the public and the BOCs than nonstructural safeguards. The Commission also found that the benefits of structural separation had decreased since the adoption of the BOC Separation Order, due to technological and market developments that diminished the BOCs' ability to misallocate costs and engage in access discrimination. Further, the Commission found, based on its experience, that the introduction of new information services by the BOCs was slowed or prevented altogether by structural separation, thus denying the public the benefits of innovation. The Commission also found that structural separation imposed direct costs on the BOCs resulting from duplication of facilities and personnel, limitations on joint marketing, and deprivation of economies of scope. The Ninth Circuit upheld the Commission's analysis of the costs of structural separation in California I and California III. 2. Effect of the 1996 Act and Other Factors

48. In the Computer III Further Remand Notice, the Commission sought comment on how various factors, including reports of anticompetitive behavior by the BOCs and the increase in the number of BOC information service offerings since the elimination of structural separation, affected the Commission's cost-benefit analysis of structural separation in Computer III. The 1996 Act was enacted after the Commission issued the Computer III Further Remand Notice, and raises additional issues that may affect this cost-benefit analysis. As discussed in more detail below, we tentatively conclude that the Act's overall pro-competitive, de-regulatory framework, as well as our public interest analysis, support the continued application of the Commission's nonstructural safeguards regime to the provision by the BOCs of intraLATA information services. We also tentatively conclude that allowing the BOCs to offer intraLATA information services subject to nonstructural safeguards serves as an appropriate balance of the need to provide incentives to the BOCs for the continued development of innovative new technologies and information services that will benefit the public with the need to protect competing ISPs against the potential for anticompetitive behavior by the BOCs. We thus propose to allow the BOCs to continue to provide intraLATA information services on an integrated basis, subject to the Commission's Computer III and ONA requirements as modified or amended by this proceeding, or on a structurally separate basis. If a BOC chooses to provide intraLATA information services on a structurally separate basis, we seek comment on whether we should permit the BOC to choose between a Computer II and an Act-mandated affiliate under section 272 or section 274, or whether we should mandate one of these types of affiliates.

a. Section 251 and Local Competition

49. Competition in the local exchange and exchange access markets is the best safeguard against anticompetitive behavior. BOCs are unable to engage successfully in discrimination and cost misallocation to the extent that competing ISPs have alternate sources of access to basic services. Stated differently, when other telecommunications carriers, such as interexchange carriers (IXCs) or cable service providers, compete with the BOCs in providing basic services to ISPs, the BOCs are less able to engage successfully in discrimination and cost misallocation because they risk losing business from their ISP customers for basic services to these competing telecommunications carriers.

50. As discussed above, the 1996 Act affirmatively promotes local competition. Sections 251 and 253, among other sections, are intended to eliminate entry barriers and foster competition in the local exchange and exchange access markets. Indeed, the market for local exchange and exchange access services has begun to respond to some degree to the pro-competitive mandates of the 1996 Act. Some ISPs, for example, currently are obtaining basic services that underlie their information services from competing providers of telecommunications services that have entered into interconnection agreements with the BOCs pursuant to section 251.

51. We recognize that the BOCs remain the dominant providers of local exchange and exchange access services in their in-region states, and thus continue to have the ability and incentive to engage in anticompetitive behavior against competing ISPs. On the other hand, the movement toward local exchange and exchange access competition should, over time, decrease and eventually eliminate the need for regulation of the BOCs to ensure that they do not engage in access discrimination or cost misallocation of their basic service offerings. The Commission has previously concluded that the nonstructural safeguards established in Computer III could combat such anticompetitive behavior as effectively as structural separation requirements, but in a less costly way. We thus tentatively conclude that the de-regulatory, pro-competitive provisions of the 1996 Act, and the framework the 1996 Act set up for promoting local competition, are consistent with, and provide additional support for, the continued application of the Commission's current nonstructural safeguards regime for BOC provision of intraLATA information services. We seek comment on this tentative conclusion.

b. Structural Separation and the 1996 Act

52. In the Computer III Further Remand Notice, we sought comment on the issue of whether some form of structural separation should be reimposed for the provision of information services by the BOCs, and we discussed briefly the costs and benefits that the Commission previously identified in granting structural relief to the BOCs. In this section, we seek comment on the extent to which the Act-mandated separation requirements may affect this cost-benefit analysis.

53. As noted above, the 1996 Act permits the BOCs to enter markets from which they were previously restricted, allowing the BOCs to develop and market innovative new technologies and information services. In doing so, Congress in certain cases imposed structural separation requirements on the BOCs. Section 272, for example, allows the BOCs to provide certain interLATA information services as well as in-region, interLATA telecommunications services, and to engage in manufacturing activities, only through a structurally separate affiliate. Section 274 imposes structural separation requirements on BOC provision of intraLATA and interLATA electronic publishing services. Congress did not, however, mandate separation requirements for BOC provision of other information services.

54. In the Non-Accounting Safeguards Order we recognized that section 272 on its face does not require the BOCs to offer intraLATA information services through a separate affiliate, and deferred to this proceeding the question of whether the Commission should exercise its general rulemaking authority to do so. We find it significant that Congress limited the separate affiliate requirement in section 272 to BOC provision of most interLATA information services, interLATA telecommunications services, and manufacturing, and in section 274 to BOC provision of electronic publishing services. We therefore tentatively conclude that Congress' decision to impose structural separation requirements in sections 272 and 274, while relevant to our cost-benefit analysis, does not in itself warrant a return to structural separation for BOC provision of intraLATA information services not subject to those sections. We seek comment on this tentative conclusion.

55. Congress's decision to mandate structural separation only for certain information services does not necessarily foreclose the Commission from mandating or allowing structural separation for other information services. We recognize that, for example, the statutory separate affiliate requirements may reduce the cost of returning to a structural separation regime for BOC provision of intraLATA information services, given that the BOCs already are required to establish at least one structurally separate affiliate in order to provide the services covered by sections 272 and 274. Some BOCs may find it more efficient to provide all of their information services through a statutorily-mandated affiliate. In addition, it may be in the public interest for the Commission to prescribe a uniform set of regulations for BOC provision of both intraLATA and interLATA information services, by requiring, for example, that BOCs provide all information services through an affiliate that complies with the statute. This approach would eliminate the need to distinguish between intraLATA and interLATA information services for purposes of regulation and, consequently, lower compliance and enforcement costs.

56. On the other hand, mandatory structural separation would entail increased transaction and production costs for the BOCs, as discussed above. In addition, in the Computer III Further Remand Notice we noted that all of the BOCs currently are offering some information services on an integrated basis pursuant to CEI plans approved by the Commission. Thus, our cost-benefit analysis should take into account the costs today of returning to structural separation. These would include the personnel, operational, and other changes the BOCs would have to undergo in order to reinstate a regime of structural separation, and the service disruptions, lower service quality, reduced innovation, and higher user rates that may result. We must also consider the effect on the public of the potential delay in the development of new technologies and information services by the BOCs that may result. In addition, once the separation requirements under sections 272 and 274 sunset, structural separation for intraLATA information services based on the existence of the statutorily-mandated affiliates would have to be reexamined.

57. We also recognize the benefits of a flexible, regulatory framework that would allow the BOCs, consistent with the public interest, to structure their operations as they see fit in order to maximize efficiencies and thus provide greater benefits to consumers. We note that, under our current rules, a BOC may provide an intraLATA information service either on an integrated basis pursuant to an approved CEI plan or on a structurally separated basis pursuant to the Commission's Computer II rules. SBC has argued that the BOCs continue to need this type of flexibility to provide intraLATA information services either on an integrated basis, subject to appropriate safeguards, or through a separate affiliate, because the most appropriate form of regulation varies service-by-service, depending on the relative significance of cost considerations and other factors. Although the Commission may need to devote more resources to administer and enforce multiple regulatory regimes, this approach would allow the BOCs to structure their intraLATA information service offerings more in accordance with their business needs. In addition, such an approach may minimize the

risk of service disruptions, since the BOCs would not have to change the manner in which they are providing their current intraLATA information service offerings.

58. In addition to the factors cited by the Commission in the Computer III Phase I Order, more recent events may affect the analysis of the relative costs and benefits of structural and nonstructural safeguards. In particular, we earlier discussed how our Price Caps Fourth Report and Order eliminates the sharing mechanism from the price caps regime, thereby reducing the BOCs' incentive to misallocate costs. We also described previously how the local competition provisions of the 1996 Act provide for alternate sources of access to basic services, thereby diminishing the BOCs' ability to engage in anticompetitive behavior against competing ISPs.

59. In light of this analysis, we continue to believe it is preferable, as a matter of public interest, to continue with the Commission's nonstructural safeguards regime rather than to reimpose structural separation, notwithstanding the affiliate requirements of sections 272 and 274 of the Act. We thus tentatively conclude that the BOCs should continue to be able to choose whether to provide intraLATA information services either on an integrated basis, subject to the Commission's Computer III and ONA requirements as modified or amended by this proceeding, or pursuant to a separate affiliate. We seek comment on this tentative conclusion. In addition, if a BOC chooses to provide intraLATA information services through a separate affiliate, we seek comment on whether we should permit the BOC to choose between a Computer II and an Act-mandated affiliate, or whether we should mandate one of these types of affiliates. Finally, we seek comment on how the recent *SBC v. FCC* decision in the United States District Court for the Northern District of Texas affects this analysis.

C. Comparably Efficient Interconnection (CEI) Plans

1. Proposed Elimination of Current Requirements

60. In the Interim Waiver Order adopted in response to the California III decision, the Bureau allowed the BOCs to continue to provide existing enhanced services on an integrated basis, provided that they filed CEI plans for those services. In addition, the Bureau required the BOCs to file CEI plans for new enhanced services they propose to offer, and to obtain the Bureau's approval for these plans before beginning to provide service. We concluded that the partial vacation of the BOC Safeguards Order in California III reinstated the service-specific CEI plan regime, augmented by implementation of ONA, until the Commission concluded its remand proceedings. BOCs were also required to comply with the requirements established in their approved ONA plans, because we had previously determined that ONA requirements are independent of the removal of structural separation requirements.

61. In this Further Notice, we tentatively conclude that we should eliminate the requirement that BOCs file CEI plans and obtain Bureau approval for those plans prior to providing new information services. We note that CEI plans were always intended to be an interim measure, designed to bridge the gap between the Commission's decision to lift structural separation in the Computer III Phase I Order and the implementation of ONA. While CEI plans have been effective as interim safeguards, we tentatively conclude that they are not necessary to protect against access discrimination once the BOCs are providing information services pursuant to approved ONA plans, which they have been for several years. ONA provides ISPs an even greater level of protection against access discrimination than CEI. Under ONA, not only must the BOCs offer network services to competing ISPs in compliance with the nine CEI "equal access" parameters, but the BOCs must also unbundle and tariff key network service elements beyond those they use to provide their own enhanced services offerings. BOCs are also subject to ONA amendment requirements that constitute an additional safeguard against access discrimination following the lifting of structural separation.

62. Further, under the 1996 Act, the BOCs are now subject to additional statutory requirements that will help prevent access discrimination, including the section 251 unbundling requirements and the network information disclosure requirements of section 251(c)(5). These statutory requirements all serve as further protections against access discrimination, both by requiring the BOCs to open the local exchange market to competition, and by ensuring that the BOCs publicly disclose on a timely basis information about changes in their basic network services.

63. Given the protections afforded by ONA and the 1996 Act, we believe that the substantial administrative costs associated with BOC preparation, and agency review, of CEI plans outweigh their utility as an additional safeguard against access discrimination. Moreover, the time and effort involved in the preparation and review of the CEI plans may delay the introduction of new information services by the BOCs, without commensurate regulatory benefits. Such a result is contrary to one of the Commission's original purposes in adopting a nonstructural safeguards regime, which was to promote and speed introduction of new information services, benefiting the public by giving them access to innovative new technologies.

64. For the reasons outlined above, we tentatively conclude that we should eliminate the requirement that BOCs file CEI plans and obtain Bureau approval for those plans prior to providing new information services. We believe the significant burden imposed by these requirements on the BOCs and the Commission outweighs their possible incremental benefit as additional safeguards against access discrimination. In this light, we tentatively conclude that lifting the CEI plan requirement will further our statutory obligation to review and eliminate regulations that are "no longer necessary in the public interest." We seek comment on this tentative conclusion and our supporting analysis. Parties who disagree with this tentative conclusion should address whether there are more streamlined procedures that could be adopted as an alternative to the current CEI filing requirements.

65. We recognize that, as part of our effort to reexamine our nonstructural safeguards regime, we seek comment in this Further Notice on whether we should modify or amend certain ONA requirements. Because we base our tentative conclusion that we should eliminate the CEI-plan filing requirement in part on the adequacy of ONA, we ask that parties comment on how any of the modifications the Commission proposes in Part IV.D., or proposed by commenters in response to our questions, may affect this tentative conclusion. We also seek comment on whether the requirements that the 1996 Act imposes on the BOCs, such as those relating to section 251 unbundling and network information disclosure, are sufficient in themselves to provide a basis for eliminating CEI plans.

2. Treatment of Services Provided Through 272/274 Affiliates

a. Section 272

66. In the Non-Accounting Safeguards Order, we noted that section 272 of the Act imposes specific separate affiliate and nondiscrimination requirements on BOC provision of "interLATA information services," but does not address BOC provision of intraLATA information services. We concluded that, pending the conclusion of the Computer III Further Remand proceeding, BOCs may continue to provide intraLATA information services on an integrated basis, in compliance with the Commission's nonstructural safeguards established in Computer III and ONA.

67. The Non-Accounting Safeguards Order also raised the related issue of whether a BOC that provides all information services (both intraLATA and interLATA) through a section 272 separate affiliate satisfies the Commission's Computer II separate subsidiary requirements, and therefore does not have to file a CEI plan for those services. We noted that the record in the Non-Accounting Safeguards Order was insufficient to make this determination, and that we would examine this issue in the Computer III Further Remand proceeding.

68. If we do not adopt our tentative conclusion in this proceeding to eliminate the CEI plan filing requirement for the BOCs, we tentatively conclude that the BOCs should not have to file CEI plans for information services that are offered through section 272 separate affiliates, notwithstanding that section 272's requirements are not identical to the Commission's Computer II requirements (all other applicable Computer III and ONA safeguards, however, as amended or modified by this proceeding, would continue to apply). We note that, to the extent certain or all BOCs no longer have to provide interLATA services through a section 272 affiliate as a result of the SBC v. FCC decision by the United States District Court for the Northern District of Texas, then this tentative conclusion would not apply.

69. We reach our tentative conclusion for several reasons. First, we believe that the concerns underlying the Commission's Computer II requirements regarding access discrimination and cost misallocation are sufficiently addressed by the accounting and non-accounting requirements set forth in section 272 and the Commission's orders

implementing this section. Second, after a BOC receives authority under section 271 to provide interLATA services through a section 272 affiliate, the BOC in many cases may want to provide a seamless information service to customers that would combine both the inter- and intraLATA components of such service. For the Commission to require that the BOC also receive approval under a CEI plan for the intraLATA component of such service is, in our view, unnecessary, and likely to delay the provision of integrated services that would be beneficial to consumers. We seek comment on this tentative conclusion and supporting analysis.

70. We also noted in the Non-Accounting Safeguards Order that other issues raised regarding the interplay between the 1996 Act and the Commission's Computer III/ONA regime would be addressed in the Computer III Further Remand proceeding. These included whether: (1) the Commission should harmonize its regulatory treatment of intraLATA information services provided by the BOCs with the section 272 requirements imposed by Congress on interLATA information services; (2) the 1996 Act's CPNI, network disclosure, nondiscrimination, and accounting provisions supersede various of the Commission's Computer III nonstructural safeguards; and (3) section 251's interconnection and unbundling requirements render the Commission's Computer III and ONA requirements unnecessary. These issues are either being addressed in this Further Notice or have been covered in other proceedings.

b. Section 274

71. In the Telemessaging and Electronic Publishing Order, we concluded that the Commission's Computer II, Computer III, and ONA requirements continue to govern the BOCs' provision of intraLATA electronic publishing services. We found, however, that the record was insufficient to determine whether BOC provision of electronic publishing through a section 274 affiliate satisfied all the relevant requirements of Computer II, such that the BOC would not have to file a CEI plan for that service. We noted that we would consider that issue, as well as other issues raised regarding the revision or elimination of the Computer III/ONA requirements, in the Computer III Further Remand proceeding.

72. If we do not adopt our tentative conclusion in this proceeding to eliminate the CEI plan filing requirement for the BOCs, we tentatively conclude, as we do above for information services that are provided through a section 272 affiliate, that BOCs should not have to file CEI plans for electronic publishing services or other information services provided through their section 274 affiliate (as noted above, however, all other applicable Computer III and ONA safeguards, as amended or modified by this proceeding, would continue to apply). As noted above, to the extent certain or all BOCs no longer are subject to section 274 for their provision of electronic publishing as a result of the SBC v. FCC decision by the United States District Court for the Northern District of Texas, then this tentative conclusion would not apply.

73. Again, we reach our tentative conclusion for several reasons. First, we believe the section 274 separation and nondiscrimination requirements, and the Commission's rules implementing those requirements, are sufficient to address concerns regarding access discrimination and misallocation of costs in general. Second, given that Congress set forth detailed rules in section 274 for the specific provision of electronic publishing services, we do not believe the Commission should continue to require the BOCs to file, and the Commission to approve, CEI plans before the BOCs may provide such services. We seek comment on this tentative conclusion and supporting analysis.

3. Treatment of Telemessaging and Alarm Monitoring Services

74. In the Telemessaging and Electronic Publishing Order and the Alarm Monitoring Order, respectively, we concluded that the Commission's Computer II, Computer III, and ONA requirements continue to govern the BOCs' provision of intraLATA telemessaging services and alarm monitoring services. Because neither section 260 nor section 275 imposes separation requirements for the provision of intraLATA telemessaging services or alarm monitoring services, respectively, BOCs may provide those services, subject both to other restrictions in those sections, as applicable, as well as the Commission's current nonstructural safeguards regime, as modified by the proposals that we may adopt in this proceeding.

4. Related Issues

75. If we adopt our tentative conclusion to eliminate the CEI plan filing requirement for the BOCs, we seek comment on whether we should dismiss all CEI matters pending at that time (including pending CEI plans, pending CEI plan amendments, and requests for CEI waivers), on the condition that the BOCs must comply with any new or modified rules that may be established as a result of this Further Notice. We also seek comment on whether we should require a BOC with CEI approval to continue to offer service under the CEI requirements. To the extent that parties involved in pending CEI matters raise issues other than those directly related to the CEI requirements (e.g., whether the service for which the BOC is seeking CEI-plan approval is a true information service, as opposed to a telecommunications service that should be offered under tariff), we seek comment on how and in what forum those issues should be addressed.

76. We note that section 276 directs the Commission to prescribe a set of nonstructural safeguards for BOC provision of payphone service, which must include, at a minimum, the "nonstructural safeguards equal to those adopted in" the Computer III proceeding. In implementing section 276, the Commission required the BOCs, among other things, to file CEI plans describing how they would comply with various nonstructural safeguards. The Bureau approved the BOCs' CEI plans to provide payphone service on April 15, 1997.

77. We seek comment on whether the changes that may be made to the Commission's Computer III and ONA rules as a result of this Further Notice should also apply to the nonstructural safeguards regime established in the Payphone Order proceeding for BOC provision of payphone service. For example, to the extent that we adopt our tentative conclusion to eliminate the CEI plan filing requirement, should we also relieve the BOCs from the requirement of filing amendments to their CEI plans for payphone service? How does this comport with the statutory requirement in section 276? We seek comment on these issues.

D. ONA and Other Nonstructural Safeguards

1. ONA Unbundling Requirements

a. Introduction

78. The Commission's ONA unbundling requirements serve both to safeguard against access discrimination and to promote competition and market efficiency in the information services industry. As described above, the Commission conditioned the permanent elimination of the Computer II structural separation requirements imposed on the BOCs upon the evolutionary implementation of ONA and other nonstructural safeguards. The ONA requirements, however, have a significance independent of whether they provide the basis for lifting structural separation. In 1990, during the course of the remand proceedings in response to California I, the Commission required the BOCs to implement ONA regardless of whether ONA provided the basis for elimination of structural separation. As discussed below, the Commission stated that "[a] major goal of ONA is to increase opportunities for ESPs to use the BOCs' regulated networks in highly efficient ways, enabling ESPs to expand their markets for their present services and develop new offerings as well, all to the benefit of consumers." It was for this reason that the Commission applied the ONA requirements to GTE in 1994.

79. ONA is the overall design of a carrier's basic network services to permit all users of the basic network, including the information services operations of the carrier and its competitors, to interconnect to specific basic network functions and interfaces on an unbundled and "equal access" basis. The BOCs and GTE through ONA must unbundle key components of their basic services and make them available under tariff, regardless of whether their information services operations utilize the unbundled components. Such unbundling ensures that competitors of the carrier's information services operations can develop information services that utilize the carrier's network on an economical and efficient basis.

b. ONA Unbundling Requirements

80. In the Computer III Phase I Order we declined to adopt any specific network architecture proposals for ONA and instead specified certain standards that carriers' ONA plans must meet. The unbundling standard for the BOCs required that: (1) the BOCs' enhanced services operations obtain unbundled network services pursuant to tariffed terms, conditions, and rates available to all ISPs; (2) BOCs provide an ini-

tial set of basic service functions that could be commonly used in the provision of information services to the extent technologically feasible; (3) ISPs participate in developing the initial set of network services; (4) BOCs select the set of network services based on the expected market demand for such elements, their utility as perceived by information service competitors, and the technical and costing feasibility of such unbundling; and (5) BOCs comply with CEI requirements in providing basic network services to affiliated and unaffiliated ISPs. In the BOC ONA Order that reviewed the initial BOC ONA plans for compliance with the Commission's requirements, the Commission generally approved the use of the "common ONA model" that described unbundled services BOCs would provide to competing ISPs. Under the common ONA model, ISPs obtain access to various unbundled ONA services, termed Basic Service Elements (BSEs), through access links described as Basic Service Arrangements (BSAs). BSEs are used by ISPs to configure their information services. Other ONA elements include Complementary Network Services (CNSs), which are optional unbundled basic service features (such as stutter dial tone) that an end user may obtain from carriers in order to obtain access to or receive information services, and Ancillary Network Services (ANSs), which are non-Title II services, such as billing and collection, that may be useful to ISPs.

81. The BOCs and GTE are also subject to the ONA amendment requirement. Under this requirement, if a subject carrier itself seeks to offer an information service that uses a new BSE or otherwise uses different configurations of underlying basic services than those included in its approved ONA plan, the carrier must amend its ONA plan at least ninety days before it proposes to offer that information service. The Commission must approve the amendment before the subject carrier can use the new basic service for its own information services.

82. In addition to the ONA services that BOCs and GTE currently provide, there are mechanisms to help ISPs obtain the new ONA services they require to provide information services. As described below, when an ISP identifies a new network functionality that it wants to use to provide an information service, it can request the service directly from the BOC or GTE through a 120-day process specified in our rules, or it can request that the Network Interconnection Interoperability Forum (NIIF) sponsored by the Alliance for Telecommunications Industry Solutions (ATIS) consider the technical feasibility of the service.

83. Under the Commission's 120-day request process, an ISP that requests a new ONA basic service from the BOC or GTE must receive a response within 120 days regarding whether the BOC or GTE will provide the service. The BOC or GTE must give specific reasons if it will not offer the service. The BOC or GTE's evaluation of the ISP request is to be based on the ONA selection criteria set forth in the original Phase I Order: (1) market area demand; (2) utility to ISPs as perceived by the ISPs themselves; (3) feasibility of offering the service based on its cost; and (4) technical feasibility of offering the service. If an ISP objects to the BOC or GTE's response, it may seek redress from the Commission by filing a petition for declaratory ruling.

84. Additionally, ISPs can ask the NIIF for technical assistance in developing and requesting new network services. Upon request, the NIIF will establish a task force composed of representatives from different industry sectors to evaluate the technical feasibility of the service, and through a consensus process, make recommendations on how the service can be implemented. ISPs can then take the information to a specific BOC or GTE and request the service under the 120-day process using the NIIF result to show that the request is technically feasible.

85. As part of the Commission's 1998 biennial review of regulations, we seek comment on whether ONA has been and continues to be an effective means of providing ISPs with access to the BOC/GTE unbundled network services they need to structure efficiently and innovatively their information service offerings. To the extent that commenters assert that ONA is effective or ineffective, we request that they cite to specific instances to support their claims.

86. In addition, we seek comment on whether the "common ONA model" through which ISPs gain access to BSEs, BSAs, CNSs, and ANSs is adequate to provide ISPs with the network functionalities they need. If not, what specific changes to the ONA unbundling framework should be made? Some parties have argued that the common ONA model forces ISPs to purchase unnecessary services or functionalities that are embedded within the BSEs, BSAs, CNSs, and ANSs. We seek comment on this argument. In addressing these issues, commenters should take note of our separate inquiry below regarding the impact of section 251 and its separate unbundling regime.

87. We further seek comment on whether ISPs make use of the ONA framework to acquire unbundled network services or whether they use other means to obtain such services in order to provide their information service offerings. Commenters that have used means other than ONA to acquire or provide unbundled network services should identify those means, state why ONA was not used, and discuss why the alternative approach was more effective and efficient.

88. In addition, we seek comment on whether the ONA 120-day request process established to help ISPs obtain new ONA services has been effective. We seek comment, from ISPs in particular, regarding whether they have made use of the 120-day request process, and the results from using that process. If ISPs have not used the 120-day request process, we request that they explain why they have not done so. We further request that parties comment, with specificity, on what, if anything, we should do to streamline the 120-day request process to make it more useful. In the alternative, we seek comment on whether the 120-day request process should be eliminated, in light of the fact that the issues that must be resolved between the carrier and the requesting ISP are technical and operational in nature, and may be most appropriately addressed in an industry forum, such as the NIIF. We also seek comment on whether the ONA amendment process has been effective.

110
89. We further seek comment regarding the role of the NIIF in helping ISPs obtain basic services from the BOCs and GTE. We seek comment, from ISPs in particular, regarding whether they have requested assistance from the NIIF in determining the technical feasibility of offering particular network functionalities as new basic services, and if so, the results obtained. If ISPs have not done so, we request that they tell us why not. We further seek comment on whether we should continue to request that the NIIF perform the function of facilitating ISP ONA requests or whether some other forum or industry group would be more appropriate.

90. Finally, we seek comment on whether and how the development of new information services, including, for example, Internet services, should affect our analysis of the effectiveness of the Commission's current ONA rules for ISPs. As we noted in the Information Service and Internet Access NOI, many of the Commission's existing rules have been designed for traditional circuit-switched voice networks rather than the emerging packet-switched data networks. While the Information Service and Internet Access NOI sought comment, in general, on identifying ways in which the Commission could facilitate the development of high-bandwidth data networks while preserving efficient incentives for investment and innovation in the underlying voice network, we seek comment in this Further Notice specifically on whether and how the Commission should modify the Computer III and ONA rules in light of these technological developments.

91. Specifically, we seek comment on how the Commission's Computer III or ONA rules may impact the BOCs' incentive to invest in and deploy data network switching technology. For example, the Commission's existing ONA rules require the BOCs to unbundle and separately tariff all basic services. We have interpreted this rule to require a BOC to unbundle and separately tariff a basic service used in the provision of an information service provided by the BOC affiliate, even where the basic service is solely located in, and owned by, the BOC affiliate, not the BOC. This situation may arise, for example, when a frame relay switch is located in, and owned by, the BOC affiliate rather than the BOC. We seek comment on the appropriate treatment of these types of services.

c. Effect of the 1996 Act

(1) Section 251 Unbundling

92. Section 251 of the Act requires incumbent LECs, including the BOCs and GTE, to provide to requesting telecommunications carriers interconnection and access to unbundled network elements at rates, terms, and conditions that are just, reasonable, and nondiscriminatory, and to offer telecommunications services for resale. The Act defines "telecommunications carrier" as "any provider of telecommunications services, except that such term does not include aggregators of telecommunications services (as defined in section 226)." As we concluded in the Local Competition Order, the term "telecommunications carrier" does not include ISPs that do not also provide domestic or international telecommunications. Thus, as discussed above, companies that provide both information and telecommunications services are able to request interconnection, access to unbundled network elements, and resale under section 251, but companies that only provide information services ("pure ISPs") are not accorded such rights under section 251.

93. Despite this limitation, there are several ways that pure ISPs may be able to obtain benefits from section 251, as discussed in Part III.B above. We recognize, however, that section 251 provides a level of unbundling that pure ISPs do not receive under the Commission's current ONA framework. Unbundling under section 251 includes the physical facilities of the network, together with the features, functions, and capabilities associated with those facilities. Section 251 also requires incumbent LECs to provide for the collocation at the LEC's premises of equipment necessary for interconnection or access to unbundled network elements, under certain conditions. Unbundling under ONA, in contrast, emphasizes the unbundling of basic services, not the substitution of underlying facilities in a carrier's network. ONA unbundling also does not mandate interconnection on carriers' premises of facilities owned by others. These differences may be due to the different policy goals that the two regimes were designed to serve.

94. As seen above, section 251 unbundling raises a number of issues relating to the Commission's ONA framework. In the Non-Accounting Safeguards Order, for example, some parties stated that section 251's interconnection and unbundling requirements render the Commission's Computer III and ONA requirements unnecessary. A related issue is whether the Commission, pursuant to our general rulemaking authority, should extend section 251-type unbundling to "pure ISPs."

95. In this Further Notice, we seek comment on whether section 251, as currently applied, obviates the need for ONA. We ask commenters to analyze this issue with respect to both pure ISPs as well as ISPs that are also telecommunications carriers. For example, is ONA unbundling still necessary for ISPs that are also telecommunications carriers for whom section 251 unbundling is available? As for pure ISPs, does the fact that they can obtain the benefits of section 251 by becoming telecommunications carriers, or by partnering with or obtaining basic services from competitive telecommunications providers, render ONA unnecessary? Commenters should address whether ONA should still be available for pure ISPs or other ISPs in areas where there may not be sufficient competition in the local exchange market.

96. We also seek comment on whether it is in the public interest for the Commission to extend section 251-type unbundling to pure ISPs. Put differently, we seek comment regarding whether, pursuant to our general rulemaking authority contained in section 201-205 of the Act, and as exercised in the Computer III, ONA, and Expanded Interconnection proceedings, we can and should extend some or all rights accorded by section 251 to requesting telecommunications carriers to pure ISPs. Commenters who contend that it is in the public interest to extend section 251-type unbundling should address why it is necessary to do so, given the alternative options pure ISPs have to obtain the benefits of section 251 unbundling, as well as the unbundling rights ISPs currently enjoy under the Commission's existing ONA regime. Commenters should also address whether the extension of section 251-type unbundling to pure ISPs would be inconsistent with section 251, which by its terms applies only to telecommunications carriers. Similarly, commenters should address whether section 251-type unbundling is appropriate for pure ISPs, given the different purposes section 251 and ONA serve, and the different approaches to unbundling they encompass. Furthermore, commenters that argue that we should extend the section 251 unbundling framework to pure ISPs should explain what such a framework would include. For example, commenters should address, among other things, whether extending section 251-type unbundling rights to pure ISPs necessarily requires the extension to pure ISPs of any obligations under section 251 or other Title II provisions. Commenters should also address whether extending section 251-type unbundling to pure ISPs obviates the need for ONA.

(2) InterLATA Information Services

97. As discussed above, we tentatively conclude in this Further Notice that the Commission's nonstructural safeguard regime should continue to apply to BOC provision of intraLATA information services. Prior to the enactment of the 1996 Act, however, we did not distinguish between intraLATA and interLATA information services, and we did not explicitly apply our Computer III and ONA rules to BOC provision of interLATA information services since the BOCs were prevented under the MFJ from providing interLATA services. Section 272 of the 1996 Act, however, does distinguish between intraLATA and interLATA information services by imposing separation and nondiscrimination requirements on BOC provision of interLATA information services. We seek comment, therefore, on whether the Commission's ONA requirements, as modified or amended by this proceeding, should be interpreted as encompassing BOC provision of interLATA information services. We also seek comment on whether it

would be inconsistent with section 272 for the Commission to apply ONA requirements to BOC provision of interLATA information services.

98. In addressing this issue, we ask that commenters take note of the following policy considerations. As noted above, the Commission required the BOCs to implement ONA regardless of whether ONA provided the basis for elimination of structural separation. We stated that ONA serves the public interest, not only by serving as a critical nonstructural safeguard against anticompetitive behavior by the BOCs, but also by promoting the efficient use of the network by ISPs, to the benefit of consumers. On the other hand, section 272 already sets forth the statutory requirements for BOC provision of interLATA information services and, therefore, including such services within the Commission's ONA framework may be unnecessary to protect the public interest. Moreover, as discussed above, section 251 unbundling may obviate ONA in some or all respects, including its application to BOC provision of interLATA information services. We also seek comment, to the extent commenters believe that ONA should encompass BOC provision of interLATA information services, on how the Commission's current ONA requirements, including ONA reporting requirements, may need to be changed or supplemented, if at all, to take account of such services.

2. ONA and Nondiscrimination Reporting Requirements

a. Introduction

99. In this section of the Notice, we examine the various reporting requirements imposed on the BOCs and GTE by the Computer III and ONA regimes. These reporting requirements were originally intended as a safeguard, in that the BOCs and GTE must disclose information that would allow detection of patterns of access discrimination. In addition, certain reporting requirements were intended to promote competition, by providing interested parties (including ISPs and equipment manufacturers) with information about service introduction and deployment by the subject carriers, which may assist such parties in structuring their own operations.

100. We recognize, however, that a number of years have passed since certain of these reporting requirements were imposed, and that some of the information we require to be disclosed may no longer be useful, relevant, or related to either the safeguard or competition promotion functions identified above. Thus, as part of the Commission's 1998 biennial review of regulations, we intend in this proceeding to reexamine each of the reporting obligations imposed on the BOCs and GTE by the Computer III and ONA regimes, to determine whether any of these requirements should be eliminated or modified, consistent with the 1996 Act. We also seek comment on what, if any, different or additional reporting requirements should be imposed to safeguard against anticompetitive behavior by the BOCs and GTE and to promote competition in the provision of information services. In particular, we also seek comment on methods to facilitate access to and use of this information by unaffiliated entities, including small entities.

101. We set forth below the ONA reporting requirements and make specific inquiries regarding each requirement. The following are general inquiries that apply to all ONA reporting requirements. We ask parties to respond to both the specific and general inquiries in their comments on each ONA reporting requirement.

a. Is the information reported necessary to or helpful in monitoring the compliance of the subject carriers with their unbundling and nondiscrimination obligations? If not, why not? Would other types of information be more useful for compliance monitoring or enforcement purposes?

b. Is this requirement duplicative? In other words, does the Commission currently require other reports that disclose the same or substantially similar information, or serve the same purposes? If so, how should the Commission streamline these requirements?

c. Do industry groups, such as ATIS and/or NIIF, collect and compile information that is duplicative of that required by the Commission? If so, is that information readily available to interested parties?

d. Should we continue to require the subject carriers to file this report with the Commission both on paper and on disk, or should we adopt streamlined filing proposals similar to those set forth in the Further Notice of Proposed Rulemaking in the Non-Accounting Safeguards proceeding? Specifically, should we require either:

i) a certification process whereby the subject carrier must maintain the required information in a standardized format, and file with the Commission an annual affidavit stating: (1) the information is so maintained; (2) the information will be updated in compliance with our rules; (3) the information will be maintained accurately; and (4) how the public will be able to access the information; or
ii) electronic posting whereby the subject carriers must make the required information available on the Internet (for example, by posting it on their website) or through another similar electronic mechanism?

e. If we continue to maintain a paper filing requirement, is the information presented in a clear, comprehensible format? If not, what modifications to the format would improve clarity and accessibility?

f. If we continue to maintain a paper filing requirement, should we alter the frequency with which we require this report to be filed? If so, what alteration should be made, and what is the basis for that alteration? In the alternative, if we impose a certification process or electronic posting requirement, how often should subject carriers be required to update the information they must maintain? How must the subject carriers maintain historical data, and for what length of time?

102. In conjunction with our inquiries elsewhere in this item, we seek to examine, and, if possible, clarify the relationship between the ONA reporting requirements and the other obligations imposed on the subject carriers by ONA. For example we seek comment above on whether we should modify or eliminate the ONA unbundling requirements. To the extent that parties argue that we should do so, we request that they comment upon the effect that such action would have on the reporting obligations of the subject carriers. It seems that if the subject carriers were no longer required to unbundle and tariff ONA services, much of the information we currently require to be disclosed in the annual and semi-annual ONA reports would cease to exist. Does this mean that all such reporting requirements should be eliminated? Are there other meaningful reporting requirements that should be imposed instead?

b. Annual ONA Reports

103. The BOCs and GTE are required to file annual ONA reports that include information on: 1) annual projected deployment schedules for ONA service, by type of service (BSA, BSE, CNS), in terms of percentage of access lines served system-wide and by market area; 2) disposition of new ONA service requests from ISPs; 3) disposition of ONA service requests that have previously been designated for further evaluation; 4) disposition of ONA service requests that were previously deemed technically infeasible; 5) information on Signaling System 7 (SS7), Integrated Services Digital Network (ISDN), and Intelligent Network (IN) projected development in terms of percentage of access lines served system-wide and on a market area basis; 6) new ONA services available through SS7, ISDN, and IN; 7) progress in the IILC (now NIIF) on continuing activities implementing service-specific and long-term uniformity issues; 8) progress in providing billing information including Billing Name and Address (BNA), line-side Calling Number Identification (CNI), or possible CNI alternatives, and call detail services to ISPs; 9) progress in developing and implementing Operation Support Systems (OSS) services and ESP access to those services; 10) progress on the uniform provision of OSS services; and 11) a list of BSEs used in the provision of BOC/GTE's own enhanced services. In addition, the BOCs are required to report annually on the unbundling of new technologies arising from their own initiative, in response to requests by ISPs, or resulting from requirements imposed by the Commission.

104. We believe that certain aspects of the annual reporting requirements may be outdated and should be streamlined. We seek comment, for example, on whether we should continue to require the subject carriers to continue to report on projected deployment of ONA services (item 1 above), particularly as this information does not appear to change appreciably from year to year. Should we instead require the subject carriers to make a one-time filing of a 5-year deployment schedule at the time a new ONA service is introduced? In addition, should we require the subject carriers to continue to report on the disposition of ONA service requests from ISPs (items 2, 3, and 4 above), despite evidence that the frequency of such requests has declined appreciably since the initial implementation of ONA?

105. We seek comment on whether we should continue to require the subject carriers to report on deployment of SS7 (items 5 and 6), which has become available in most service areas. We further seek comment on

whether we should continue to require the subject carriers to report on the availability and deployment of ISDN, IN, and AIN services (items 5 and 6). In addition, we seek comment regarding whether the requirement that the BOCs report on "new ONA services available through SS7, ISDN, and IN, and plans to provide these services" (item 6) overlaps so significantly with the requirement that they report on the unbundling of new technologies that one of these requirements should be eliminated.

106. In addition, we seek comment on whether, and to what extent, we should alter the requirement that carriers report on progress in industry forums regarding uniformity issues. Currently, subject carriers are required to report on progress in the IILC on continuing activities implementing service-specific and long-term uniformity issues (item 7). As a preliminary matter, we note that the functions that used to be performed by the IILC were transferred, as of January 1, 1997, to the NIIF. We tentatively conclude that, at a minimum, the ONA reporting requirement should be updated to reflect this change. We believe that the BOCs have agreed to provide to the NIIF periodic updates regarding issues that have been resolved. We seek comment on the nature of such updates to the NIIF, including specifically what information the BOCs provide. We further seek comment regarding whether the information from such updates is comprehensive enough, and sufficiently accessible to interested parties, to allow us to eliminate the ONA reporting requirement covering progress of matters in the NIIF. In the alternative, we seek comment regarding whether there are other sources of information produced by or for ATIS or the NIIF that may reasonably substitute for this ONA reporting requirement.

107. We seek comment on whether we should continue to require the subject carriers to report on progress in providing billing information and call detail services to ISPs (item 8). We seek comment on whether we should continue to require the subject carriers to report on progress in developing, implementing, and providing access to Operation Support Systems (OSS) services (items 9 and 10). We believe it is important for such information to continue to be publicly available. We recognize, however, that such information may be more appropriately provided pursuant to other statutory provisions. For example, we issued a Public Notice on June 10, 1997, asking for comment on LCI's petition for expedited rulemaking to establish reporting requirements, performance, and technical standards for OSS in the context of section 251 of the Act. We seek comment on the appropriate forum for collecting information about OSS and whether continued reporting under Computer III is necessary in light of other pending Commission proceedings. We further seek comment on what, if any, changes we should make to the ONA OSS reporting requirements, to better reflect the obligations with respect to OSS imposed on carriers in the Local Competition Order.

c. Semi-Annual ONA Reports

108. In addition to the annual ONA reports discussed above, the BOCs and GTE are required to file semi-annual ONA reports. These semi-annual reports include: (1) a consolidated nationwide matrix of ONA services and state and federal ONA tariffs; (2) computer disks and printouts of data regarding state and federal tariffs; (3) a printed copy and a diskette copy of the ONA Services User Guide; (4) updated information on 118 categories of network capabilities requested by ISPs and how such requests were addressed, with details and matrices; and 5) updated information on BOC responses to the requests and matrices.

109. Considerable portions of the semi-annual reports filed by the BOCs appear to be redundant, as each of the BOCs files identical information. This generic information includes the ONA service matrix and the Services Description section of the ONA Services User Guide, as well as information on the 118 network capabilities originally requested by ISPs, and how the BOCs collectively have responded to these requests. Bell Communications Research, Inc. (Bellcore) originated and, until its spin-off earlier this year, prepared these portions of the BOCs' semi-annual reports; currently, an organization called the National Telecommunications Alliance (NTA) has assumed this responsibility. We see no benefit to continuing to require each of the BOCs separately to file the generic portions of the semi-annual report, particularly as there appear to be few changes in this information from year to year. Thus, we tentatively conclude that the BOCs should be permitted to make one consolidated filing (or posting) for all generic information they currently submit in their semi-annual reports. We seek comment on this tentative conclusion. We further seek comment on whether we should allow GTE to join in this consolidated filing or posting (to the extent that this arrangement would be mutually agreeable to the parties) with respect to the information it files that overlaps with that filed by the BOCs.

110. In addition, we seek comment on the frequency with which we require the subject carriers to file the information contained in the semi-annual ONA reports. In particular, we inquire as to whether we should reduce the filing frequency, and restructure the semi-annual reports to become part of the annual ONA reports filed by the subject carriers. A reduction in filing frequency would decrease the burden imposed on the subject carriers, without, we believe, significantly affecting the quality or utility of the information supplied, much of which is either generic or rather static in nature, or is available through other means (for example, in the state and federal tariffs filed by the subject carriers).

111. We also seek comment regarding whether certain information required in the semi-annual reports overlaps with the information required in the annual reports. For example, in the annual ONA reports, the Commission requires the BOCs and GTE to supply information on the disposition of several categories of ONA requests, whereas in the semi-annual reports, the Commission requires the BOCs and GTE to supply information regarding how they have responded to ISP requests for the existing 118 categories of network capabilities. These separate requirements seem to elicit similar, if not identical, information. To the extent there is overlap, we seek comment regarding whether these requirements may be simplified and consolidated, or, in the alternative, whether either or both sets should be eliminated entirely. We also seek comment on other, similar, overlaps among the ONA reporting requirements, and what we should do to eliminate the burdens or inefficiencies associated with them.

d. Nondiscrimination Reports

112. The BOCs and GTE are also required to establish procedures to ensure that they do not discriminate in their provision of ONA services, including the installation, maintenance, and quality of such services, to unaffiliated ISPs and their customers. For example, they must establish and publish standard intervals for routine installation orders based on type and quantity of services ordered, and follow these intervals in assigning due dates for installation, which are applicable to orders placed by competing service providers as well as orders placed by their own information services operations. In addition, they must standardize their maintenance procedures where possible, by assigning repair dates based on nondiscriminatory criteria (e.g., available work force and severity of problem), and handling trouble reports on a first-come, first-served basis.

113. In order to demonstrate compliance with the nondiscrimination requirements outlined above, the BOCs and GTE must file quarterly nondiscrimination reports comparing the timeliness of their installation and maintenance of ONA services for their own information services operations versus the information services operations of their competitors. If a BOC or GTE demonstrates in its ONA plan that it lacks the ability to discriminate with respect to installation and maintenance services, and files an annual affidavit to that effect, it may modify its quarterly report to compare installation and maintenance services provided to its own information services operations with services provided to a sampling of all customers. In their quarterly reports, the BOCs and GTE must include information on total orders, due dates missed, and average intervals for a set of service categories specified by the Commission, following a format specified by the Commission.

114. We tentatively conclude that the nondiscrimination obligations for provisioning and performing maintenance activities established by Computer III continue to apply to the BOCs and GTE. We seek comment, however, on whether the current quarterly installation and maintenance reports are an appropriate and effective mechanism for monitoring the BOCs' and GTE's compliance with these nondiscrimination obligations. Are there ways in which the quarterly reports, and the accompanying annual affidavits, may be simplified, clarified, or otherwise made more useful to the Commission and the interested public? Along these lines, we note that the Commission issued a Further Notice of Proposed Rulemaking in conjunction with its Non-Accounting Safeguards Order, seeking comment on what types of reporting requirements are necessary to implement the specific nondiscrimination requirement set forth in section 272(e)(1) of the Communications Act. While we acknowledge that the nondiscrimination obligations imposed on the BOCs by section 272(e)(1) differ from those imposed by Computer III, we seek comment regarding whether the information required to demonstrate compliance with both sets of nondiscrimination requirements is sufficiently similar that we should harmonize the ONA nondiscrimination reporting requirements with the reporting requirements adopted in response to the Further Notice of Proposed Rulemaking in

the Non-Accounting Safeguards proceeding. We also seek comment on whether we should harmonize the ONA nondiscrimination reporting requirements with reporting requirements being considered in other proceedings, such as in the LCI OSS Petition.

115. We note that, like the BOCs, AT&T was originally required to file quarterly nondiscrimination reports on the provision of installation and maintenance services to unaffiliated providers of enhanced services. The Commission modified and reduced these reporting requirements in 1991 and in 1993. In 1996, the Bureau eliminated the requirement that AT&T file quarterly installation and maintenance nondiscrimination reports, as well as the requirement that AT&T file an annual affidavit that its quarterly reports are true and that it has not discriminated in providing installation and maintenance services.

116. The Bureau declined to eliminate the requirement that AT&T file a second affidavit, which affirms that AT&T has followed the installation procedures in its ONA plan and has not discriminated in the quality of network services provided to competing enhanced service providers, deferring that determination to the instant proceeding. We tentatively conclude that we should no longer require AT&T to file this second affidavit because the level of competition in the interexchange services market is an effective check on AT&T's ability to discriminate in the quality of network services provided to competing ISPs. This tentative conclusion is consistent with our previous finding that the competitive nature of the interexchange market provides an important assurance that access to those services will be open to ISPs, and that much of the information of greatest use to ISPs is controlled by LECs such as the BOCs, and not by interexchange carriers. We also find that this tentative conclusion comports with our statutory obligation to eliminate regulations that are no longer necessary due to "meaningful economic competition" between providers of such service. We seek comment on this tentative conclusion.

3. Other Nonstructural Safeguards

a. Network Information Disclosure Rules

117. The Commission's network information disclosure rules seek to prevent anticompetitive behavior by ensuring that ISPs and other interested parties can obtain timely access to information affecting the interconnection of information services to the BOCs', AT&T's, and other carriers' networks. Prior to the 1996 Act, the rules set forth in the Commission's Computer II and Computer III proceedings governed the disclosure of network information. Section 251(c)(5) of the Act requires incumbent LECs to "provide reasonable public notice of changes in the information necessary for the transmission and routing of services using that local exchange carrier's facilities or networks, as well as of any other changes that would affect the interoperability of those facilities or networks." The Commission recently adopted network information disclosure requirements to implement section 251(c)(5) in the Local Competition Second Report and Order. Although we discussed our preexisting network information disclosure requirements in conjunction with the requirements of section 251(c)(5) in the Local Competition Second Report and Order, we did not address in that proceeding whether our Computer II and Computer III network information disclosure requirements should continue to apply independently of our section 251(c)(5) network information disclosure requirements. We address that issue in this proceeding as part of our 1998 biennial review of regulations, in an effort to eliminate unnecessary and possibly conflicting requirements.

118. The rules established pursuant to section 251(c)(5) in some respects appear to duplicate and even exceed the rules established under Computer II and Computer III, while in other respects they do not. For example, section 251(c)(5) of the Act, and the Commission's rules implementing that section, only apply to incumbent LECs, while some of the Computer II network information disclosure requirements apply more broadly to "all carriers owning basic transmission facilities." We seek comment, therefore, on the extent to which the Commission should retain its network information disclosure rules established in the Commission's Computer II and Computer III proceedings in light of the disclosure requirements stemming from section 251(c)(5) of the 1996 Act. As a starting point, we set forth in the following paragraphs a general description of the current network disclosure requirements under Computer II, Computer III, and section 251(c)(5), and then we ask parties to comment on whether, and why, specific requirements should be retained or eliminated. The following descriptions are not intended to be an exhaustive list of every feature of the Commission's current network disclosure requirements. These descriptions are intended, rather, to serve as a basis for comparison by parties commenting in this proceeding.

119. Computer II Network Disclosure Obligations.

a. Application of the Network Disclosure Obligations. The Computer II network information disclosure rules consist of two requirements: (1) a disclosure obligation which depends on the existence of a Computer II separate subsidiary; and (2) a disclosure obligation that applies independent of whether the carrier has a Computer II separate subsidiary. The Commission initially imposed both requirements on AT&T in the Computer II Final Decision. The Commission extended disclosure requirement (2) in the Computer II Reconsideration Order to "all carriers owning basic transmission facilities" (hereinafter the "all-carrier" rule). After divestiture, the Commission extended disclosure requirement (1) to the BOCs insofar as they are providing information services in accordance with the structural separation requirements of Computer II.

b. Events Triggering the Public Notice Requirement. The Computer II "all-carrier" rule is triggered by implementation of "change[s] . . . to the telecommunications network that would affect either intercarrier interconnection or the manner in which interconnected CPE must operate . . ." The Computer II separate affiliate disclosure obligation is triggered by any of three events: (1) the BOC communicates the relevant network information directly to its Computer II separate affiliate; (2) such information is used by the BOC or a third party to develop services or products which reasonably can be expected to be marketed by the Computer II separate affiliate; or (3) the BOC engages in joint research and development with its Computer II separate affiliate, leading to the design or manufacture of any product that either affects the network interface or relies on a not-yet implemented interface.

c. Timing of Public Notice. Under Computer II, the disclosure obligation of the "all-carrier" rule must be met "in a timely manner and on a reasonable basis." The Computer II separate affiliate network disclosure obligation requires that disclosure be made to information service competitors of the Computer II affiliate "at the same time" disclosure is made directly to the Computer II separate affiliate as described in item (1) above. If the disclosure requirement is triggered by the events described in items (2) and (3) above, then disclosure must be made at the "make/buy" point, i.e., when the BOC or an affiliated company decides, in reliance on previously undisclosed information, to produce itself or to procure from a non-affiliated company any product, whether it be hardware or software, the design of which either affects the network interface or relies on the network interface.

d. Types of Information To Be Disclosed. The Computer II "all-carrier" rule encompasses "all information relating to network design . . . , insofar as such information affects . . . intercarrier interconnection . . ." For the separate affiliate network disclosure requirement, the information required to be disclosed consists of, "at a minimum, . . . any network information which is necessary to enable all [information] service . . . vendors to gain access to and utilize and to interact effectively with [the BOCs'] network services or capabilities, to the same extent that [the BOCs' Computer II separate affiliate] is able to use and interact with those network services or capabilities." This requirement includes information concerning "network design, technical standards, interfaces, or generally, the manner in which interconnected . . . enhanced services will interoperate with [any of the BOCs'] network." In addition to technical information, the information required includes marketing information, such as "commitments of the carrier with respect to the timing of introduction, pricing, and geographic availability of new network services or capabilities."

e. How Public Notice Should Be Provided. Under Computer II, carriers subject to the "all-carrier" rule must disclose in their tariffs or tariff support material either the relevant network information or a statement indicating where such information can be obtained, that will allow competitors to use network facilities in the same manner as the subject carrier. The separate affiliate network disclosure obligation requires that the BOCs "file with the Commission, within seven calendar days of the date the disclosure obligation arises, a notice apprising the public that the disclosure has taken place and indicating in summary form the nature of the information which has been disclosed [to its Computer II separate affiliate], the identity of any source documents and where interested parties can obtain additional details." Moreover, when a BOC "files a tariff for a new or changed network service where there has been a prior disclosure to or for the benefit of [the Computer II separate affiliate], the tariff support materials must list any disclosure notices previously filed with the Commission that are relevant to the tariffed offering."

120. Computer III Network Disclosure Obligations.

a. Application of the Network Disclosure Obligations. The Computer III network information disclosure rules initially were imposed on AT&T

and the BOCs in the Phase I Order and Phase II Order. The Commission later extended the Computer III network information disclosure rules and other nondiscrimination safeguards to GTE in the GTE ONA Order.

b. Events Triggering the Public Notice Requirement. The Computer III public notice requirement is triggered at the "make/buy" point; that is, when AT&T, any of the BOCs, or GTE "makes a decision to manufacture itself or to procure from an unaffiliated entity, any product the design of which affects or relies on the network interface."

c. Timing of Public Notice. AT&T, the BOCs, and GTE must disclose the relevant information concerning planned network changes at two points in time. First, they must disclose the relevant technical information at the "make/buy" point. They are permitted, however, to condition this "make/buy" disclosure on the recipient's signing of a nondisclosure agreement, upon which the relevant technical information must be disclosed within 30 days. Second, they must make public disclosure of the relevant technical information a minimum of twelve months before implementation of the change; however, if the planned change can be implemented between six and twelve months following the "make/buy" point, then public notice is permitted at the "make/buy" point, but at a minimum of six months before implementation.

d. Types of Information To Be Disclosed. Under Computer III, the range of information encompassed by the network information disclosure requirements is adopted from, and identical to, the Computer II requirements. Specifically, at the "make/buy" point, AT&T, the BOCs, and GTE must disclose that a network change or network service is under development. The notice itself need not contain the full range of relevant network information, but it must describe the proposed network service with sufficient detail to convey what the new service is and what its capabilities are. The notice must also indicate that technical information required for the development of compatible information services will be provided to any entity involved in the provision of information services and may indicate that such information will be made available only to such entities willing to enter into a nondisclosure agreement. Once an entity has entered into a nondisclosure agreement, AT&T, the BOCs, or GTE must provide the full range of relevant information.

e. How Public Notice Should Be Provided. Under the Computer III rules, public notice is made through direct mailings, trade associations, or other reasonable means.

121. Section 251(c)(5) Network Disclosure Obligations.

a. Application of the Network Disclosure Obligations. These rules apply to all incumbent LECs, as the term is defined in section 251(h) of the Act.

b. Events Triggering the Public Notice Requirement. The incumbent LEC makes a decision to implement a network change that either: (1) affects "competing service providers' performance or ability to provide service; or (2) otherwise affects the ability of the incumbent LEC's and a competing service provider's facilities or network to connect, to exchange information, or to use the information exchanged." Examples of network changes that would trigger the section 251(c)(5) public disclosure obligations include, but are not limited to, changes that affect (1) transmission, (2) signalling standards, (3) call routing, (4) network configuration, (5) logical elements, (6) electronic interfaces, (7) data elements, and (8) transactions that support ordering, provisioning, maintenance, and billing.

c. Timing of Public Notice. Incumbent LECs must disclose planned network changes at the "make/buy" point, but at least twelve months before implementation of the change. If the planned change can be implemented within twelve months of the "make/buy" point, then public notice must be given at the "make/buy" point, but at least six months before implementation. If the planned changes can be implemented within six months of the make/buy point, then the public notice may be provided less than six months before implementation, if additional requirements set forth in section 51.333 of the Commission's rules are met.

d. Types of Information To Be Disclosed. Under the Commission's regulations, incumbent LECs are required to disclose, at a minimum, "complete information about network design, technical standards and planned changes to the network." Public notice of planned network changes, at a minimum, shall consist of: (1) the carrier's name and address; (2) the name and telephone number of a contact person who can supply additional information regarding the planned changes; (3) the implementation date of the planned changes; (4) the location(s) at which the changes

will occur; (5) a description of the type of changes planned (including, but not limited to, references to technical specifications, protocols, and standards regarding transmission, signalling, routing, and facility assignment as well as references to technical standards that would be applicable to any new technologies or equipment, or that may otherwise affect interconnection); and (6) a description of the reasonably foreseeable impact of the planned changes.

e. How Public Notice Should Be Provided. Network disclosure may be made either: (1) by filing public notice with the Commission in accordance with section 51.329 of the Commission's rules; or (2) providing public notice through industry fora, industry publications, or on the incumbent LEC's own publicly accessible Internet sites, as well as a certification filed with the Commission in accordance with section 51.329 of the Commission's rules.

122. We tentatively conclude that the Commission's rules established pursuant to section 251(c)(5) for incumbent LECs should supersede the Commission's previous network information disclosure rules established in Computer III. We also tentatively conclude that the Commission's network disclosure rules established in Computer II should continue to apply — specifically, the Computer II separate affiliate disclosure rule should continue to apply to any BOC that operates a Computer II subsidiary, and the all-carrier rule should continue to apply to all carriers owning basic transmission facilities. We reach our tentative conclusion regarding the Computer III network disclosure rules since, in our view, the 1996 Act disclosure rules for incumbent LECs are as comprehensive, if not more so, than the Commission's Computer III disclosure rules. Parties who disagree with this view should explain why all or some aspects of the Commission's Computer III disclosure rules are still needed for incumbent LECs in light of the rules established pursuant to section 251(c)(5) of the Act.

123. We recognize, however, that some BOCs may still be providing certain intraLATA information services through a Computer II subsidiary, rather than on an integrated basis under the Commission's Computer III rules. We tentatively conclude, therefore, that the Computer II separate subsidiary disclosure rule should continue to apply in such cases because, for instance, it encompasses marketing information which is not included within the scope of information to be disclosed under section 251(c)(5) and it requires disclosure under a more stringent timetable than that required under section 251(c)(5). We also tentatively conclude that the all-carrier rule should continue to apply to all carriers owning basic transmission facilities, since it is broader in certain respects than section 251(c)(5). First, it applies to all carriers, whereas section 251(c)(5) just applies to incumbent LECs. In addition, the all-carrier rule requires, among other things, the disclosure of network changes that affect end users' CPE, whereas our rules interpreting section 251(c)(5) only require the disclosure of information that affects "competing service providers." We seek comment on these tentative conclusions and analyses.

b. Customer Proprietary Network Information (CPNI)

124. The Commission first established its CPNI rules in the Computer II Final Decision in 1980 to encourage AT&T, the BOCs, and GTE to develop and market efficient, integrated combinations of information and basic services without the marketing restrictions imposed by structural separation, while protecting the competitive interests of information service competitors. While the CPNI rules are an integral part of the Commission's current nonstructural regulatory framework for the provision of information services by AT&T, the BOCs, and GTE, we defer consideration of all CPNI issues relating to our Computer II and Computer III rules to our CPNI rulemaking proceeding.

125. Section 702 of the 1996 Act, which added a new section 222 to the Communications Act of 1934, as amended, sets forth requirements for use of CPNI by telecommunications carriers, including the BOCs. Although the requirements of section 222 were effective upon enactment of the 1996 Act, we issued a CPNI Notice on May 17, 1996, which sought comment on, among other things, what regulations we should adopt to implement section 222. We stated in the CPNI Notice that the CPNI requirements the Commission previously established in the Computer II and Computer III proceedings remain in effect pending the outcome of the rulemaking, to the extent they do not conflict with section 222. The CPNI proceeding will address whether these pre-existing requirements should be retained, eliminated, extended, or modified in light of the Act.

126. Under the Computer II structural separation requirements, AT&T, the BOCs, and GTE were prohibited from jointly marketing their basic services with the enhanced services provided through their sepa-

rate affiliate. Under the Computer III nonstructural safeguards regime, AT&T, the BOCs, and GTE were permitted to engage in joint marketing of basic and enhanced services subject to restrictions on their use of CPNI. In the BOC Safeguards Order, the Commission strengthened the CPNI rules by requiring that, for customers with more than twenty lines, BOC personnel involved in marketing enhanced services obtain written authorization from the customer before gaining access to its CPNI.

127. On March 6, 1992, the Association of Teleessaging Services International, Inc. (ATSI) filed a petition for reconsideration of the BOC Safeguards Order in CC Docket No. 90- 623, the Computer III Remand proceeding. ATSI asked the Commission to modify the BOC Safeguards Order by: (1) prohibiting joint marketing of basic and information services; (2) extending the prior authorization requirement for CPNI to all users, regardless of size; and (3) ensuring that users who restrict access to their CPNI continue to receive nondiscriminatory treatment and an adequate level of service. On May 17, 1996, the Commission issued an order dismissing issues (2) and (3) as moot because of the passage of the Telecommunications Act of 1996 and our commencement of a new proceeding to address the obligations of telecommunications carriers with respect to CPNI in light of the new statute. The order also noted that issue (1) remained to be addressed by the Commission. ATSI filed a motion to withdraw its petition for reconsideration in CC Docket No. 90-623 and to incorporate its petition into the Commission's Computer III Further Remand proceeding in CC Docket No. 95- 20, as well as other proceedings, on December 10, 1996. On May 14, 1997, the Common Carrier Bureau partially granted the ATSI Motion by agreeing to address in this proceeding whether joint marketing of basic services and information services by the BOCs should be prohibited.

128. We therefore seek comment on the issue raised in the ATSI Petition: whether, to the extent the Commission continues to allow the BOCs to provide information services subject to a nonstructural safeguards regime, the BOCs should be prohibited from jointly marketing basic services and information services when these services are provided on an intraLATA basis. To the extent parties support the view that the term "telecommunications service" in the Act encompasses the same set of services as the term "basic service" did under the Commission's previous rules, parties should discuss the issue raised in the ATSI petition in terms of whether joint marketing should be allowed between telecommunications services and information services. As noted in the ATSI Order, we do not address this question with respect to interLATA information services, since under section 272 of the Act BOCs must provide interLATA information services pursuant to a section 272 affiliate and subject to the joint marketing provisions in that section. Also, under section 274, BOCs providing electronic publishing, whether on an interLATA or intraLATA basis, must do so pursuant to a section 274 affiliate and subject to the joint marketing rules in that section.

129. In its petition, ATSI argues that joint marketing of basic services and information services harms consumers and diminishes overall competition in the information services market. ATSI alleges that the BOCs have abused the Commission's joint marketing rules by: (1) routing calls to subscribers of competing voice messaging providers to the BOC's own voice messaging service instead; (2) soliciting customers of competing voice messaging providers who contact the BOCs to request other BOC services; (3) providing customers with misleading and disparaging information about the voice messaging services offered by competing providers; and (4) engaging in other unfair practices. ATSI therefore requests that the Commission prohibit the BOCs from using the same personnel and facilities to market basic services and information services. We seek comment on these issues. We also seek comment on the costs and operational efficiencies or inefficiencies of allowing the BOCs to provide intraLATA information services on an integrated basis, but requiring different personnel and facilities to market basic services and information services.

V. JURISDICTIONAL ISSUES

130. Our authority, pursuant to section 2(a) of the Communications Act, to establish, enforce, modify, or eliminate a regime of safeguards for the provision of information services by the BOCs and GTE is well settled. In addition, the scope of our authority to preempt inconsistent regulation on the part of the states has been established by the Commission in the previous Computer III orders and has been affirmed on appeal.

131. In the Computer III Phase I Order, the Commission preempted: (1) all state structural separation requirements applicable to the provision of enhanced services by AT&T and the BOCs; and (2) all state non-

structural safeguards applicable to AT&T and the BOCs that were inconsistent with federal safeguards. The California I court vacated these preemption actions, on the ground that the Commission had not adequately justified imposing them. In response to the California I remand, the Commission narrowed the scope of federal preemption to cover only: (1) state requirements for structural separation of facilities and personnel used to provide the intrastate portion of jurisdictionally mixed enhanced services; (2) state CPNI rules requiring prior authorization that is not required by federal regulation; and (3) state network disclosure rules that require initial disclosure at a time different than the federal rules. The Commission reasoned that such state requirements would thwart or impede the nonstructural safeguards pursuant to which the BOCs may provide interstate enhanced services, and the federal goals such safeguards were intended to achieve. The California III court upheld the Commission's narrowly tailored preemption, stating that the Commission had met its burden of demonstrating that it was preempting only state regulations that would negate valid federal regulatory goals.

132. Thus, we believe that the proposals we make in the current Further Notice, and the options upon which we seek comment, fall within the scope of our authority previously established in the context of this proceeding, as outlined above. To the extent that our proposals go beyond our recognized preemption authority, we ask that commenters identify those proposals and comment on our authority to adopt them.

VI. PROCEDURAL MATTERS

A. Ex Parte Presentations

133. This matter shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's revised ex parte rules, which became effective June 2, 1997. See Amendment of 47 C.F.R. 1.1200 et seq. Concerning Ex Parte Presentations in Commission Proceedings, GC Docket No. 95-21, Report and Order, 12 FCC Rcd 7348, 7356-57, 27 (citing 47 C.F.R. 1.1204(b)(1)) (1997). Persons making oral ex parte presentations are reminded that memoranda summarizing the presentations must contain summaries of the substance of the presentations and not merely a listing of the subjects discussed. More than a one or two sentence description of the views and arguments presented is generally required. See 47 C.F.R. 1.1206(b)(2), as revised. Other rules pertaining to oral and written presentations are set forth in Section 1.1206(b) as well.

B. Initial Paperwork Reduction Act Analysis

134. This Further Notice contains either a proposed or modified information collection. As part of its continuing effort to reduce paperwork burdens, we invite the general public and the Office of Management and Budget (OMB) to take this opportunity to comment on the information collections contained in this Further Notice, as required by the Paperwork Reduction Act of 1995, Pub. L. No. 104-13. Public and agency comments are due at the same time as other comments on this Further Notice; OMB comments are due 60 days from the date of publication of this Further Notice in the Federal Register. Comments should address: (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimates; (c) ways to enhance the quality, utility, and clarity of the information collected; and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology.

C. Initial Regulatory Flexibility Certification

135. The Regulatory Flexibility Act (RFA) requires that an initial regulatory flexibility analysis be prepared for notice-and-comment rulemaking proceedings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities." The RFA generally defines "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction." In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act. A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).

136. This Further Notice pertains to the Bell Operating Companies (BOCs), each of which is an affiliate of a Regional Holding Company (RHC),

as well as to GTE and AT&T. Neither the Commission nor SBA has developed a definition of "small entity" specifically applicable to the BOCs, GTE, or AT&T. The closest definition under SBA rules is that for establishments providing "Telephone Communications, Except Radiotelephone," which is Standard Industrial Classification (SIC) code 4813. Under this definition, a small entity is one employing no more than 1,500 persons. We note that each BOC is dominant in its field of operation and all of the BOCs as well as GTE and AT&T have more than 1,500 employees. We therefore certify that this Further Notice will not have a significant economic impact on a substantial number of small entities. The Commission's Office of Public Affairs, Reference Operations Division, will send a copy of this Further Notice, including this certification, to the Chief Counsel for Advocacy of the Small Business Administration. A copy will also be published in the Federal Register.

D. Comment Filing Procedures

137. Pursuant to applicable procedures set forth in Sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. 1.415, 1.419, interested parties may file comments on or before March 27, 1998, and reply comments on or before April 23, 1998. To file formally in this proceeding, you must file an original and six copies of all comments, reply comments, and supporting comments. If you want each Commissioner to receive a personal copy of your comments, you must file an original and eleven copies. Comments and reply comments should be sent to Office of the Secretary, Federal Communications Commission, 1919 M Street, N.W., Room 222, Washington, D.C., 20554, with a copy to Janice Myles of the Common Carrier Bureau, 1919 M Street, N.W., Room 544, Washington, D.C., 20554. Parties should also file one copy of any documents filed in this docket with the Commission's copy contractor, International Transcription Services, Inc., 1231 20th Street, N.W., Washington, D.C., 20036. Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center, 1919 M Street, N.W., Room 239, Washington, D.C., 20554.

138. Comments and reply comments must include a short and concise summary of the substantive arguments raised in the pleading. Comments and reply comments must also comply with section 1.49 and all other applicable sections of the Commission's rules. We also direct all interested parties to include the name of the filing party and the date of the filing on each page of their comments and reply comments. All parties are encouraged to utilize a table of contents, regardless of the length of their submission.

139. Parties are also asked to submit comments and reply comments on diskette. Such diskette submissions would be in addition to and not a substitute for the formal filing requirements addressed above. Parties submitting diskettes should submit them to Janice Myles of the Common Carrier Bureau, 1919 M Street, N.W., Room 544, Washington, D.C., 20554. Such a submission should be on a 3.5 inch diskette formatted in an IBM compatible form using MS DOS 5.0 and WordPerfect 5.1 software. The diskette should be submitted in "read only" mode. The diskette should be clearly labeled with the party's name, proceeding, type of pleading (comment or reply comments) and date of submission. The diskette should be accompanied by a cover letter.

140. You may also file informal comments or an exact copy of your formal comments electronically via the Internet at <http://www.fcc.gov/e-file> or via e-mail computer3@comments.fcc.gov. Only one copy of electronically-filed comments must be submitted. You must put the docket number of this proceeding in the subject line if you are using e-mail (CC Docket No. 95-20), or in the body of the text if by Internet. You must note whether an electronic submission is an exact copy of formal comments on the subject line. You also must include your full name and Postal Service mailing address in your submission.

VII. ORDERING CLAUSES

141. Accordingly, IT IS ORDERED that, pursuant to Sections 1, 2, 4, 10, 11, 201-205, 251, 271, 272, and 274-276, of the Communications Act of 1934, as amended, 47 U.S.C. 151, 152, 154, 160, 161, 201-205, 251, 271, 272, and 274-276, a FURTHER NOTICE OF PROPOSED RULEMAKING IS ADOPTED.

142. IT IS FURTHER ORDERED that the Commission's Office of Public Affairs, Reference Operations Division, SHALL SEND a copy of this FURTHER NOTICE OF PROPOSED RULEMAKING, including the Initial Regulatory Flexibility Certification, to the Chief Counsel for

Advocacy of the Small Business Administration, in accordance with the Regulatory Flexibility Act, see 5 U.S.C. 605(b).

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas

Secretary

Separate Statement of Commissioner Harold W. Furchtgott-Roth

Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services and 1998 Biennial Regulatory Review — Review of Computer III and ONA Safeguards and Requirements

Further Notice of Proposed Rulemaking

I support adoption of this Further Notice of Proposed Rulemaking. I question, however, whether the FCC is prepared to meet its statutory obligation to review all of its regulations in 1998.

Contrary to the captioning of this Further NPRM (and at least one other item that the staff has presented to the Commission for decision), we may be neglecting the express directives of a terse but important provision of the Telecommunications Act of 1996. In this provision, codified as Section 11 of the Communications Act, Congress directed the FCC to conduct, beginning in 1998, a biennial review of "all regulations issued under [the Act] in effect at the time of the review that apply to the operations or activities of any provider of telecommunications service" and determine whether any of these regulations are "no longer necessary in the public interest as the result of meaningful economic competition between providers of such service." 47 U.S.C. Section 161 (emphasis added). Section 11 also requires that the FCC "repeal or modify any regulation it determines to be no longer necessary in the public interest."

Clearly, Section 11 has two components: a policy against unnecessary regulations and a procedure to find and remove all such regulations every two years. In this Further NPRM, the Commission fully addresses only the policy component of Section 11.

Although the Commission thus appears to have fulfilled its duty to implement the policy of Section 11 in the context of this particular proceeding, I am concerned that — because of this item's caption and the many references to Section 11 throughout the text — we may be leaving the misimpression that we also are addressing the procedural requirements of Section 11. To my knowledge, the FCC has no plans to review affirmatively all regulations that apply to the operations or activities of any provider of telecommunications service and to make specific findings as to their continued necessity in light of current market conditions. Indeed, the comprehensive and systematic review of all FCC regulations required under Section 11 certainly would take many months to complete, yet we have not published a specific schedule to ensure completion of this task in 1998.

Nor has the Commission issued general principles to guide our "public interest" analysis and decision making process across the wide range of FCC regulations. I believe that, in addition to the direction given us within the law, the public interest determinations we eventually make pursuant to Section 11 should be made based on a straightforward analysis: regulations are in the public interest only if their benefits significantly outweigh their costs. We have not yet adopted any such guidance.

It is unfortunate that this public discussion of our responsibilities under Section 11 has first surfaced in the context of a seemingly unrelated action in the decade-old Computer III proceedings. In my view, however, we should not let this or any other such limited Commission analysis and decision making (or even the sum of such limited actions) be mistaken for complete compliance with Section 11 as envisioned by Congress. ♦



ExecPC Stalks the Elusive MegaPOP:

A Blueprint for Entering the Chicago Market

BY GREG RYAN

For most ISPs, expansion into a new market is a dream come true. The very word rings of booming business and an increased customer base. But it also brings its share of possible headaches. When ExecPC, a mid-sized ISP based out of Milwaukee, Wisconsin, decided to enter the Chicago market, we faced a number of challenges.

In the past, ExecPC's expansion had been concentrated in other Wisconsin cities and towns. Fortunately, our reputation as a reliable ISP preceded us throughout the state, and customer response was excellent. Word of mouth had been so good, in fact, those Internet users out of our calling area drew petitions asking us to open POPs in their towns.

Ordinarily, we investigate several key factors before opening a new POP and have to answer a number of questions:

- How much are the phone lines?
- How much does it cost to run a T-1 from the closest point of presence?
- Who are the local phone companies and dedicated-line companies? (After all, you have to deal with these companies as partners.)
- How far away is the new location, just in case you have to drive there in the middle of the night?
- Are there enough potential customers and reasonable advertising venues to service the new POP?

As of this writing, ExecPC covers about 90 percent of Wisconsin's population, making us the largest ISP in the state. We've also tested the out-of-state waters in Rockford, Illinois, some 120 miles away. And just 80 miles away, a mere 90-minute drive down the Lake Michigan coast, lies the Midwest's biggest market: Chicago.

Naturally, the same questions we ask and answer before opening any POP have to be applied to the Chicago market. But there are numerous other concerns as well. Advertising costs in Chicago are about *five times more expensive* than in

Milwaukee. There are about 300 competitors vying for the same customer base. And that same customer base is known for having a superiority complex toward all things Wisconsin, even if that attitude is often good natured.

That being said, there are *10 million people* in the greater Chicago metro and suburban areas, most of whom aren't even online yet. Tapping into that customer base would keep any ISP busy.

But the main problem with entering the Chicagoland market and offering access to all those customers is that multiple locations are required to support all the areas. Until recently, an ISP needed about 35 different physical locations to support the entire geographic area. When we considered the hardware required for 35 locations, running dedicated T-1s to each, and rent—combined with all the usual challenges in opening a new POP—it seemed like a virtual and logistical nightmare.

With all this in mind, Chicago seemed like too great a risk for ExecPC to take. Until recently, that is. Thanks to the emergence of the competitive local exchange carrier (CLEC) industry, we're able to support the entire Chicagoland area all the way north to the Wisconsin border from a single point of presence. There are only a few CLECs that provide this service. We chose to work with Focal Communications Corporation (www.focal.com) a CLEC headquartered in Chicago. Focal is a facility-based local phone company offering services in all the aforementioned areas, compliments of some technical magic and some pretty expensive equipment.

The hardware and setup were rather straightforward. First, we needed to run a dedicated line to our access point in New Berlin, Wisconsin. ExecPC considered several companies to run that line but as it turned out, we already had a connection to TCG, a telecommunications company serving our area, and they were "on-net" in the Focal building. Since we had an existing business relationship with TCG, it only took about a month to get the connection.

Next, we needed the telephone lines. Here's where Focal really shines, as far as we're concerned. They were able to provide 35 separate local exchanges throughout Chicagoland. Since

Spring'98 Voice On the Net®

Next Gen Telco Summit®

March 30th
Fairmont Hotel
San Jose, CA

*Also, Don't Miss
Internet Telephony:
One-On-One with
Jeff Pulver*

March 2, Los Angeles, CA
March 16, Baltimore, MD
For more info see:
<http://pulver.com/tour98>

Presented by pulver.com

The Voice of Telephony On the 'Net

Jeff Pulver, president of pulver.com, Inc. and one of the Net pioneers in the field of Internet Telephony and Net Broadcasting, developed this conference. First as a hobbyist and then as an Internet Technologist, Jeff has been tracking enabling and emerging net technologies since 1994.

The Conferences and Workshops which pulver.com produces are known for their focus on leading edge technologies and for bringing together the people who help drive the industry forward, thereby creating great business networking opportunities for all conference delegates.

Jeff is also moderator of the VON mailing list and publisher of The Pulver Report. Jeff has been a leading advocate for these technologies since the birth of the industry.

As founder of the Voice on the Net Coalition, Jeff is also outspoken with regard to his own viewpoints about the attempts by some to implement regulations to the 'Net.

7:30 - 8:30	Registration & Breakfast
8:30 - 8:40	Welcome
	Jeff Pulver, pulver.com
8:40 - 9:10	The Role of the Internet Telephony Exchange Carrier
	Tom Evslin, ITXC Corp.
9:10 - 9:40	Realtime Billing Solutions
	Kevin Allodi, Portal
9:40 - 10:10	NT As a Carrier Grade Platform
	Kevin Cherry, Microsoft
10:10 - 10:30	Break
10:30 - 11:00	Keynote: The Future of the NextGen Telco Industry
	Elon Ganor, VocalTec Communications
11:00 - 12:15	NextGen Telcos - Report from the Field:
	Jacob Davidson, DeltaThree Michael Neville, OzEmail Cliff Sobel, Net2phone
12:15 - 1:30	Lunch
1:30 - 2:00	Billing and Accounting Issues
	Carl Silva, Bellcore
2:00 - 2:30	The Role of the Gatekeeper
2:30 - 3:30	Internet Roaming
	Hong Chen, AIMquest Chris Moore, iPass
3:30 - 3:45	Break
3:45 - 4:15	Becoming a CLEC
	Glenn Richards, Fisher Wayland
4:15 - 4:45	Update on Account Rates
	FCC
4:45 - 6:00	Industry Roundtable: Issues facing the NextGen Telco Industry



For More Info

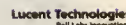
<http://pulver.com/von98/summit.html>
email: von98@pulver.com
phone: 1.516.487.1424
fax: 1.516.293.3996

510 Broadhollow Road
Suite 306
Melville, NY 11747
U.S.A.

pulver.com®

©Pulver.com, Inc. All Reserved.
All other trademarks are registered
with their respective companies.

Sponsors



our local reach up to this point had been the southern Wisconsin border city of Kenosha, this was a perfect fit for our access points. Focal fed all these exchanges into a single digital connection, allowing us to expand our entire market without wasting modems in areas that may be a bit slow. They also provided ISDN connections, giving us a total of 70 new lines. Since ExecPC is now running all digital connections (using US Robotics Total Controls), we just plugged the digital phone lines into the Total Control box and we were up and running!

Focal provided us with a locked rack to house our equipment. There's a reasonable rental fee for this, but it's not required of ISPs who already have a POP in the Chicago area. The building in which Focal is located is on-net with several telecommunications companies, including TCG. Since many of us are already on-net, this makes connecting with them a snap. Focal also charges us for the phone access, but these costs are not especially high (I shutter to think of US West's rates when ExecPC enters the Minneapolis market!).

The large amount of telephone numbers can be confusing to new customers, so Focal has designed a clever look-up service called *Focal Finder*. Basically, we have two sets of 35 numbers; one for regular modem use and one for ISDN. Each set has its own unique last four digits. To find a local calling number, a customer simply accesses the Focal Finder on our web page and then enters a "calling from" telephone number. Assuming that it's in one of the local areas, the web page responds with the two numbers—regular and ISDN—which are local for that customer's service. Focal even guarantees this. If a customer calls the correct number and is charged for more than a local

call, the CLEC will ensure that the customer doesn't pay the long-distance charges.

ExecPC's pairing with Focal Communications has removed the main obstacle that prevented ExecPC from entering the Chicagoland market. Now all we have to worry about is how to pay for those expensive ads and endure the teasing we're bound to get for being the "Cheesehead" State's largest ISP. One thing's for certain, we'll be glad to take the teasing if it turns us into the largest ISP in the entire *Midwest*! ♦

.....

Greg Ryan is president and chief operating officer of ExecPC, the largest Internet provider in Wisconsin based in New Berlin, Wisconsin. Ryan is in charge of marketing and public relations for ExecPC, as well as managing the growth and direction of the company. Before joining ExecPC, Ryan worked with manufacturing and painting robots at the Boeing Company in Seattle and designed hardware and software interfaces for field rugged computer terminals for the Singer Company in New Jersey. He's also designed embedded systems hardware and software for two dental technology companies based out of Seattle and Milwaukee. He can be reached at greg@execpc.com.

Organize 16 Modems in Only 7" of Rack Space



End cable clutter and save space for your existing or new external modems with the

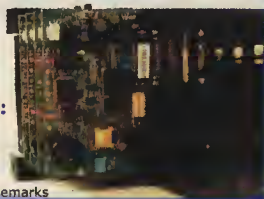
X-16 Modem Rack

- Accommodates USRobotics® Sportster® external fax modems and Cardinal® external fax modems
- Smoked Lexan® cover allows viewing of all status LED's
- Provides connections for original AC adapters supplied with modems, 110 VAC power cord included
- Sturdy anodized aluminum riveted construction - Made In USA
- Optional fan assembly for efficient cooling
- Optional 50 pin Telco cables to RJ-11 adapter for simplified phone line connections

Micro Technology Services, Inc.
1819 Firman Dr. Suite 137
Richardson, Texas 75081

For complete details, see our web site:
www.mttsi.com/modem.pl
(888) 230-MTSI Toll Free

©1997 Micro Technology Services, Inc. All rights reserved.
All other tradenames are the property of their respective trademarks





skyscape communications inc



pure speed

tel: 416.485.4313 email: info@skyscape.net

Co-locate / Hosting Services Internet Access Virtual Private Networks



INTERNET CONNECTIONS THAT REALLY SCREAM.

Instantaneous global communications. Lightning access and massive through-put. Start screaming along the information skyway. Call us - Orion.

ORION
NETWORK SYSTEMS

CONNECTIONS TO THE NEW WORLD

COME SEE US AT ISPCON BOOTH # 669

USA: 2440 Research Boulevard • Rockville, Maryland 20850 • +1 301 258 8101 • Fax: +1 301 258 3222 EUROPE: The Media Centre
131/151 Great Titchfield Street • London W1P 8AE • +44 171 892 3700 • Fax: +44 171 892 3701 • INTERNET: <http://www.OrionNetworks.net>



Ric Manning is a columnist and web master for *The Courier-Journal* in Louisville, Kentucky. His weekly column covers computers, consumer electronics and the Internet and is distributed to more than 100 newspapers by the Gannett News Service. It's also available on the World Wide Web at <http://courier-journal.com/gizweb>.

Ric was the founding editor of *Plumb and Bulletin Board Systems*, two newsletters that covered the BBS arena in the early 1980s. His freelance work has appeared in several magazines including *PC/Computing*, *Mobile Office*, *PC Week* and *Home Office Computing*.

Ric lives in Southern Indiana with his wife, two children and two Weimaraner dogs.

MANNING THE WIRES

by Ric Manning

WHITE HOUSE CONFERENCE PUTS SPOTLIGHT ON "CENSORWARE"

When the White House organized its big Internet Online Summit last December, the companies that make blocking and filtering software were there for the photo ops. After all, their software would appear to be the stars of the show. After the U.S. Supreme Court struck down the Communications Decency Act last June, the Clinton Administration said web site ratings and filtering programs were the best approach for keeping children away from sexual, violent and other objectionable material on the Net.

The various filtering programs are quickly being deployed not only in homes and schools, but also in public libraries, government agencies and private businesses. Lockheed Martin, the Internal Revenue Service and the U.S. Department of Transportation have all installed SurfWatch to filter employee use of the Internet. Filter programs have also been installed on public Internet terminals at libraries in Florida, Virginia, as well as Boston, Austin, and Long Island.

But as more people use filtering software, they are discovering that the programs are far from perfect:

- On the eve of the White House conference, the Electronic Privacy Information Center (www.epic.org) released a report that said filtering software often blocks harmless and useful web sites. The report said NetShepherd, a search-engine program that works with AltaVista searches, filters out up to 99 percent of search results, even for search phrases such as "American Red Cross" or "United Way."
- Jonathan Wallace, a New York City lawyer who publishes an online newsletter about politics, law and ethics, complained to Microsystems Software, Inc. after friends told him that the company's Cyber Patrol software had placed his site off limits. His site was blocked because it mentioned a book he wrote called *Sex, Laws and Cyberspace* and the software determined that his site contained sexual content.
- An Arizona reporter writing about Solid Oak Software's CyberSitter found that the software blocked access to web sites run by the National Organization for Women and The Well, a San Francisco-based Internet provider. CyberSitter has also been criticized for blocking entire ISPs and sites that are

critical of the program. After Vanderbilt University student Bennett Haselton founded a group called *Peacefire* that criticized CYBERSitter policies, Solid Oak blocked Haselton's page and temporarily blocked every page posted by Haselton's Internet provider.

CYBERSitter, which is marketed by the conservative group Focus on the Family, also blocks any site that includes information on "gay and lesbian issues." According to Solid Oak President Brian Milburn, the product has a "morally conservative" bias.

It's that sort of attitude that has some librarians and civil libertarians worried about filtering software.

Just before the Washington conference opened, a new coalition called the *Internet Free Expression Alliance* (www.ifea.net) said it would oppose more widespread rating and filtering software online. Among the group's members are the American Civil Liberties Union, the Electronic Privacy Information Center, the Electronic Frontier Foundation and the Society for Professional Journalists.

Speaking at the group's press conference, Steve Geimann, a former president of the Society of Professional Journalists, said filtering software "is too restrictive. The victory we won on the CDA is now being jeopardized by not-so-arbitrary pressure from a few lawmakers in a rush to correct a perceived problem."

Some library groups are also opposing the use of filtering programs in public libraries. "People have forgotten that filters are supposed to be a personal alternative that you install in your own home," Judith Krug, director of the Office for Intellectual Freedom of the American Library Association (www.ala.org) told the *Los Angeles Times*. "Unfortunately, libraries are under incredible pressure to do something to 'protect the children.'"

And Ann Beeson, staff attorney for the American Civil Liberties Union (www.aclu.org), said that although many people see private use of blocking software as an attractive alternative to government censorship, "mandatory use of these filters by government institutions does pose serious First Amendment problems."



NOW ISPs CAN LOOK THIS BIG...



...even when they are this small.

Visit us at ISPCON Spring '98
BOOTH #506

For ISPs looking to take on the competition — and win — Total Internet™ is fast becoming the weapon of choice.

Total Internet offers:

- A self-installing, self-configuring, rock-solid Connection Kit
- An easy to navigate GUI (Toolbar)
- On-the-fly, real-time Account Provisioning
- Complete Branding and Marketing Tools
- Revenue Sharing opportunities
- Unlimited Distribution to users

Call us at **(888) 832-4885** or visit <http://www.finepoint.com>



Compete with the "Big Boys"

NetHelp International is a Total Internet™ optional product partner which provides 24 x 7 technical support services to ISPs, VARs, OEMs and other technology companies.

NetHelp International offers:

- 24 x 7 personal helpdesk
- Web-based knowledge bases "branded" with your name
- Custom web-generated reports
- Seamless client log tracking
- Sales support
- Value-added services
- Multi-lingual services

Call us at **(888) 226-3848** for a free trial weekend or visit <http://www.NetHelpNow.com>

NetHelp International



"high-tech solutions with a personal touch"



Leveling the playing field.

Finally, there are people who think all the fuss about Internet filters has as much to do with product marketing as it does child protection. Some of the proposal coming out of the White House conference "are obviously self-serving for vendors who want to promote their own technique," said Barbara Ells, an industry analyst with Zona Research in Redwood City, California. "The people who make filters are the only ones with a mature product that is available today, and they see they have a window of opportunity to achieve a critical mass before other techniques catch on."

The first of those other techniques is likely to be a broad rating system adopted by web masters and integrated into browsers and other Net access tools. A system established by the Recreational Software Advisory Council (www.rsac.org) and backed by companies such as Microsoft and IBM has been part of Microsoft's Internet Explorer since version 3. A rating system has also been approved by the World Wide Web Consortium (www.w3.org), a non-profit group that sets the Web's technical standards.

The RSAC system lets users determine content access by choosing descriptive terms using a sliding scale for language, nudity, sex and violence. Access levels for nudity, for example, range from "revealing attire" to "provocative frontal nudity."

The ratings are applied by the web sites themselves. The council says more than 50,000 sites now participate, but that's just a fraction of the number of sites on the Web. In addition, most media sites are reluctant to rate themselves.

Here's a quick look at the most popular filtering programs:



Cyber Patrol 4.0

\$29.95 for Windows 3.1/95 or Macintosh
Microsystems Software
(800) 828-2608
<http://www.cyberpatrol.com>

Perhaps the most sophisticated the filtering programs, Cyber Patrol lets parents fine-tune how and when their children use the computer and the Internet. In addition to filtering and tracking what users do online, Cyber Patrol can also control how much time they spend online. And it can be configured to control access to other desktop applications such as financial records.

The program uses a database called CyberNO, which lists sites that contain content ranging from sex and drugs to violence and cults. Another list, called CyberYES, contains links to 3,000 sites that Microsystems has approved for access by children. The newest version of the program automatically updates the lists in the background whenever the computer is logged onto the Internet.

SurfWatch 3.0

\$29.95 for Windows 3.1/95 or Macintosh
Spyglass
(800) 458-6600
<http://www.surfwatch.com>

SurfWatch is one of the easiest filtering programs to install and operate. It uses a word list to block access to explicit sexual material on web sites and in news-groups. Version 3 for Macintosh, available now, also allows users to block sites that deal with violence, hate speech, gambling, drugs and alcohol. Version 3 for Windows 95 will be available shortly. The price includes a year of monthly updates to the site list. After that, updates cost \$29.95 a year.

Cyber Sentinel 2.0

\$49.95 for Windows 95
Security Software Systems
(888) 835-7278
<http://www.securitysoft.com>

Cyber Sentinel focuses its controls on sex-oriented sites. The program uses a built-in list of more than 100 words. The program scans outgoing material as well as web pages, chat rooms, e-mail and search engines. When a surfer encounters a web page that triggers the

filter, the program displays a warning on the screen, forcing the user to exit.

CyberSitter 97

\$39.95 for Windows 95
Solid Oak Software
(800) 388-2761
<http://www.cybersitter.com>

CyberSitter is one of the easiest filtering programs to install and manage, but it has some liabilities. The program is based on web site ratings, so it won't block unrated sites. CyberSitter also will prevent children from using the words in chat room or in online forums. And the program keeps a log of Internet activity and the latest version contains a utility to control the amount of PC usage. Unlike some of its competitors, updates of its filter database are free.

Net Nanny 3.1

\$39.95 for Windows 3.1/95
Net Nanny Ltd.
(800) 340-7177
<http://www.netnanny.com>

Net Nanny expects children to be good spellers. If they type a dirty word or a prohibited web address, Net Nanny might administer a warning or completely shut down the program until someone with a password revives it. You can create your own dictionary of prohibited words or download a collection from Net Nanny's web site.

X-Stop 2.0

\$39.95 for Windows
Home Alliance
(888) 734-9009
<http://www.xstop.com>

Like Net Nanny, X-Stop not only prevents users from typing dirty words on the Internet, it also screens for the same words typed in a word processor, spreadsheet or other program. The program screens at the keyboard level using a library of words that can be modified by the password holder. It also uses a database to block web sites dealing with sex and violence. Keyboard screening, however, can slow your computer to a crawl when you use programs such as Eudora because it stops to scan every character. ♦

When your customers have new ways of making money, you have new ways of making money.

© 1998 INTERSHOP Communications, Inc. All rights reserved.



THE COMPLETE, END-TO-END, GROW-AS-BIG-AS-YOU-WANT-TO-BE E-COMMERCE SOFTWARE SOLUTION.



With INTERSHOP 3, the latest and greatest, INTERSHOP remains the only full-featured hosted e-commerce package. And we're the first to bring all of today's best website design technologies to e-commerce to meet the no-compromise performance needs of ISPs. Your customers can easily integrate NT and UNIX platforms and process unlimited transactions up to 50 times faster than previous database-driven sites. And new load balancing can handle any volume of storefronts or traffic. Wait, INTERSHOP 3 has more: any customer can create and update storefront(s)

in-house and right away, build stores with any web design tool and list as many product SKUs, features and models as they like. New merchandising capabilities allow for 'Hot Deal' purchase opportunities, and ad banners that can link directly to specific product pages. If all of this isn't enough, users can personalize the whole shopping experience with the included server scripting package. INTERSHOP 3 has packages and pricing for you, whether you're an ISP with one storefront or 100,000. So contact us today and discover the secret recipe to finding entirely new profit centers.



INTERSHOP
COMMUNICATIONS
www.intershop.com

COME SEE US AT ISPCON BOOTH # 119

For a FREE information package, call 1-888-459-6703 Dept. 3A10 or visit us at www.intershop.com



Wouldn't it be nice if instead of looking for prospects you could get them to come to you? Well one of the best ways you can do that is to plant yourself at the right trade show. If you prepare well, a trade show can offer effective targeting and selectivity, high efficiency, a powerful selling environment, and an opportunity to shorten your sales cycle.

A key challenge of marketing for mid-sized and smaller ISPs is the difficulty of reaching qualified buyers in their local or regional territory. Few media offer the combination of quality and geography that you need. Local media rarely reach the right mix of quality prospects, and national media may not be cost effective, even if it does offer a regional placement. Where else can you find a venue where nearly everyone is a prospect or has the ear of one, and nearly all are local?

Shows also offer a great deal of flexibility in how you present your message, and in how you adapt to the buying needs and preferences of individual prospects, whether in a 10-second impression or a half hour discussion and demo.

It is not just a matter of sauntering over to the next show that comes along. Like any marketing initiative, using trade shows takes careful preparation, strong execution, and disciplined follow-up. This is hard work, but with a reasonable degree of care you can expect to get very good results.

STRATEGY AND TACTICS

Here are a few ideas on how to make the most of a show:

Picking the right show. Not all shows are equal, even if they draw the same size crowd. Think carefully about your own market and positioning and do careful research on the shows you can choose from. Is the orientation to consumers or business? To IT specialists, IT managers, or business people? Is it Internet specific, and is that publishing or commerce? Is it PC or IT oriented? How wide a region does it draw from. What size companies does it draw? Will you appear to be a minnow among whales and sharks, or one among peers?

Consider non-Internet shows. Depending on your target market, you might find good prospects and fewer competitors at other kinds of shows. For small business/home office targets, try shows aimed at entrepreneurs and franchise businesses. If you have targeted specific industries, try their trade

shows. Your visitors may be less jaded and more curious — which presents both a challenge and an opportunity.

Speak at the show. One of the best ways to stand out at the show, and to use the show as a platform to get press coverage, is to be a speaker. Most shows have a lecture program and are happy to include speakers with a good, timely topic and reasonable credentials, as long as the pitch is not hard sell or fluff. If you abuse your podium, the conference community will remember, but a soft sell can be very effective for branding and getting leads. Plan far ahead to get on the program, and use public relations to make your presence known to the press and the trade.

Use an effective promotional giveaway. Premiums can help people remember you long after the show, but only if they keep, use, and remember them, and think well of you for them. Many giveaways have very limited appeal, are quickly discarded or used up, or leave a questionable impression. Think of the kind of people you most want to reach, and what is useful and attractive to them. How well you do that is what matters, not how much you spend. Pens and tee shirts can be very hit-or-miss as to appeal to varying tastes. Quality reference items or tools (like a technician's screwdriver) can be effective. One favorite is a luggage tag laminated with the visitor's business card. The custom laminated variety takes about 40 seconds, which gives you time to exchange some information in the process.

Get something back for your giveaway.

What you most want from your visitors, other than a sale, is to know if they are qualified, and how to reach them for follow up. If you give away something of value, you can ask for that in return. A badge swipe is a start, but better yet is a very short ques-

tionnaire, with just a half-dozen quick questions. The more you ask, the more you better give, but it is best to keep it painless.

Grab them fast. Studies show that the average attendee spends an average of four seconds checking out a booth. If you do not get their attention and interest immediately, they will be lost to you. Make sure they can see your company name and tell who and what you are in a quick look. Invite them to look, touch, ask. Use every trick you can think of to get their attention, but get the message through as soon as they look your way. Then try to draw them in and feed them more.

Invite your prospects. Leverage your effort by inviting your existing prospects to stop by. Use the opportunity to interact with them out of the office to shorten your selling cycle. Even if they do not come, they will credit you as being a player of stature. Even if you are mobbed with other prospects, they will take your popularity as positive and impressive, and get back to you later.

Staff your booth with people who will do you credit. Use the people who can represent you to customers, who know your product and how it meets customer needs. Booth bunnies and warm bodies can draw people in and pass out brochures, but do you want prospects to think you deliver your services with the same kind of superficiality? Consider getting some training in how to play the game for the professionals who will represent you on a regular basis.

ISP BUSINESS STATUS

CRITICAL

DIAGNOSIS	NEED
<ul style="list-style-type: none">• Can't make money at \$19.55 per month	<ul style="list-style-type: none">• Profit making co-location hardware and software
<ul style="list-style-type: none">• Co-location services are costly, difficult to set-up and administer	<ul style="list-style-type: none">• Pre-configured, low-cost reliable e-mail/web server with remote administration
<ul style="list-style-type: none">• Hardware taking up too much space and power	<ul style="list-style-type: none">• Small form factor, low power server solution



Cobalt Qube27000

CONSIDER IT CASH FLOW

INTENSIVE CARE

RECOMMENDED TREATMENT

Cobalt Qube - Co-location Server

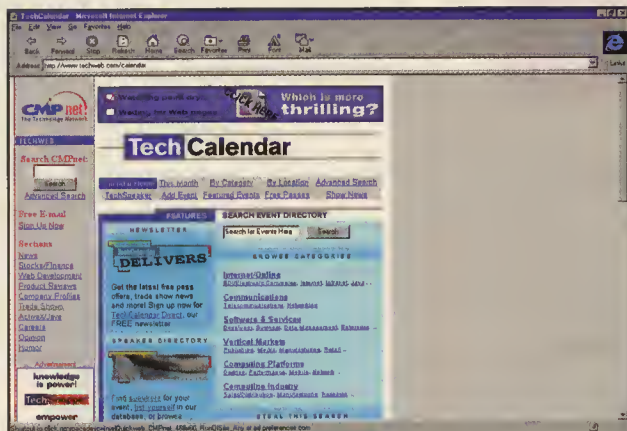
- Low cost server with preconfigured hardware and software
- Linux OS, Apache web server, CGI and Perl scripting
- High performance: saturates over 6 T1 lines



The Cobalt Qube, Call today or visit our web site to see if you qualify for an evaluation unit [650]930-2500 www.cobaltmicro.com

\$999

Co-location Server



- CMP Techweb has an extensive database of technology-related shows, searchable by location and/or subject area. www.techweb.com/calendar
- The Trade Show News Network is a multi-sponsor site with an extensive searchable calendar, plus news, and reference information on trade shows of all kinds. Includes a good section on exhibitor tips. www.tsnn.com
- ExpoBase is another extensive searchable calendar of trade shows of all kinds. www.expobase.com ♦

Evaluate your results and follow up. Follow-through is everything. Make someone responsible for it. Those prospects must be converted to sales. Don't count on them to find your number and call you. Do it expeditiously, to show them how proactive you are. Build on the dialog you have already had, so you appear smart, not stupid. Also evaluate who nibbled and who bit, so that you can learn from this show, to do better at the next show. Was it the right show with the right crowd? Did you pull them in? Did you move them from curiosity to real interest?

USEFUL RESOURCES FOR MORE INFORMATION ON THIS TOPIC

The following sites offer extensive calendars of trade shows and other background:



Michael Greenbaum is vice president of sales and marketing at AppliedTheory. He previously held senior management positions in the software, Internet, online services and hardware industries. At Borland International he was vice president of marketing responsible for all marketing and public relations functions including the annual user's conference. As a vice president at Bell Atlantic Internet, he was responsible for that company's strategy to develop an Internet presence and later to be an Internet service provider in its service area. Prior to that, he was general manager of Prodigy Services Co., the pioneering online service and was instrumental in applying the ease-of-use characteristics of the consumer to business applications. His business experience began in sales, marketing and business development with IBM.

Intellicom

announces

T1 Plus™ service for ISPs provides complete wireless 2-way satellite TCP/IP connectivity, increased bandwidth and VSAT stability for remote, rural and urban locations. Hosting services powered by IBM's S/390 Enterprise Server.

Intellicom: an ISP serving ISPs

T1 PLUS™



Intellicom Inc.

(8 8 8) 9 2 9 - v s a t

www.vsat.net

sales@vsat.net

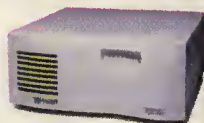
IMPROVE YOUR NETWORKING I.Q.



With Osicom's IQX-200 Remote Access Server (RAS)

It's Simply the Smartest Way To Grow Your Network

You needn't give investment protection a second thought... because we designed the IQX-200 Remote Access Server (RAS) with future-growth first-in-mind. Which means you get maximum flexibility and scalability using standards-based modular technologies, with more features and capabilities than any server in its class.



Think fast. The IQX-200 supports both digital and analog dial-in users; multiple WAN types (incorporating T1 and ISDN with on-board DSU/CSU and NT-1 interfaces); and features a scaleable architecture that accommodates growth from 8 to 168 concurrent connections. And Osicom's FASTracc high-speed LAN adapter architecture provides superior high-capacity LAN performance, including Fast Ethernet and FDDI technologies.

What's more, complete SNMP management and comprehensive security features (PAP, CHAP, Access Shifting, Dial-back, and third party support for Radius) make it easy to outsmart the criminal mind. And of course, installation and operation are just plain simple.

Don't get frustrated with network growth, network smarter – with Osicom's IQX-200. It's simply the intelligent way to grow.

For a FREE Osicom IQX-200 Access Server brochure, just give a call, toll-free, at 1-888-OSICOM-8 (1-888-674-2668).



COME SEE US AT ISPCON BOOTH # 470





ISPs MARKET REPORT

Paul Stapleton

CALCULATING RETURN ON INVESTMENT, ZEROING IN ON CHURN

ISP investors are interested in three numbers. ISP operators should be interested in the same three.

The revenue number is not one of the most important. That's a little ironic considering that up to now, revenue-run-rate (defined as the last quarter times four or last month times 12) has been one of Wall Street's key determinants of ISP valuation.

They are the three numbers needed to calculate return on investment (r), which is the most important number for investors. If I give you a dollar, how much will you give back after a year? In the year after? And so on.

These three numbers are also needed to manage an ISP, whether the customers are commercial or consumer.

THEY ARE:

- **Net Growth (g)** — How fast is the customer base growing after subtracting cancellations (churn) from additions?
- **Cost to acquire a new customer (PV)** — How much is spent on marketing and sales, or M&A to get that customer?
- **Free cash flow (c)** — How much of the money the customer gave you do you get to keep after paying for everything it costs to service that customer. For you accountants, that includes expenses incurred in the same time period as well as expenses that get amortized over the life of the customer.

As an example, let's assume an ISP has a customer base with the following characteristics and calculate the return on investment:

Net Growth = g = 20 percent per annum. Assume new growth is 44 percent, churn is 24 percent. New customer acquisition costs = PV = \$125,000. Free cash flow = c = \$24,000

In theory I can use the equation $PV = c/r-g$ to calculate the return on investment. Alternatively, I can put the growing cash flow series into an HP-12C and let it chug.

I say "in theory" because this formula assumes these assumptions go on forever. Perpetual 20 percent growth and the same perpetual costs and cash flow are not likely in the competitive, technically dynamic ISP environment. Nevertheless, I can use it to make my point. You can adjust the assumptions to fit your view of the world.

Chug, chug, the return on investment is 39.2 percent. Not too shabby huh?

1,000 new subs at a cost of \$125 per customer to acquire, each generating \$2.00 per month in free cash flow? Where my assumptions too outrageous? Too conservative?

And therein lies the problem. Analysts, investors and operators know the numbers they need to measure. There just isn't a lot of information out there. This is an industry of thousands of privately held companies. Some of them are not very good at bookkeeping. Who has the time?

A look around the industry does offer "rules of thumb," estimates and seasoned insight.

For example, recently in Christopher M. Knight's e-mail discussion list ISP-Marketing (www.isp-marketing.com) there was a discussion under the subject *RE: Does anyone know what the average churn is for an ISP?*

Amy L. La Salle (alasalles@cell2000.net) asked, "I would like to know what the average churn ratio should be for an ISP with 1,000 subscribers?"

Churn is one half of the Net Gross (g) number. It is the percentage of customers who cancel in any given time.

La Salle's question elicited several responses.

Russ W. Intravartolo of StarNet, Inc. (russ@starnetusa.net) said, "I have heard that 2 percent of your total customer base, per month, is average. We have been experiencing 1.9 percent lately."

Jack Rickard, editor/publisher of *Boardwatch Magazine* (jack.rickard@boardwatch.com) said, "On average, ISPs are adding about 8 percent per month in subscribers and losing about 3 percent." Justin W. Newton of Priori Networks, Inc. (justin@priori.net) added, "My understand-

Paul Stapleton has recently joined Rampart Associates, Inc. (www.rampart.net), an investment bank focused on ISPs and the broader communications and media market. Come visit our new offices in Denver's LODO district, or call (303)534-8585. Stapleton can also be reached at paul@rampart.net. Call for a consultation.

Stapleton is also editor of *ISP Report*, *The Financial Newsletter for Internet Service Providers*. Annual rate is \$195. Sample issue sent on request. To subscribe, e-mail ispreport@mediabiz.com, call (303) 271-9960 or fax (303) 271-9965. *ISP Report* is the newsletter of record for financial activity in the ISP industry. Feel free to send news releases.

YOU KNOW YOU NEED
**AUTOMATED REGISTRATION,
CUSTOMER BILLING & HELP DESK**
BUT DO THE CHOICES MAKE YOU WANT TO...

HURLnET has the low cost, easy-to-use solution
ISP Register 4.0™ and ISP Admin 1.0™

"Setting up customers is a breeze and HURLnET is very responsive to all our operating support needs. With ISP Admin and ISP Register we have improved our efficiency and customer service."

Sincerely,

edgenet



Jeff Thompson
VP Operations eFortress

- ISP ADMIN WRITTEN ENTIRELY IN JAVA
- INTEGRATES WITH MS ACCESS, SQL SERVER, ORACLE, AND mySQL
- NO PER DISK FEES
- SECURE CREDIT CARD VALIDATION
- SECURE CREATION OF ACCOUNTS
- HIGHLY CONFIGURABLE
- SUPPORTS MOST UNIX PLATFORMS
- IEAK COMPATIBLE
- FULL NT VERSION; USING INSTALL SHIELD
- UNIX/NT CROSS PLATFORM SUPPORT
- 60 DAY MONEY BACK GUARANTEE

ISP Register™ is an Internet Account Server for Netscape Mission Control® and is also a COMPLETE implementation of Microsoft-IEAK.

COME SEE US AT ISPCON BOOTH # 617

CALL NOW! 1-888-444-HURL (4875)
Try the demo at: www.hurl.net
Email us at: sales@hurl.net



HURLnET

ISP\$ Report Market Index

Symbol	Exchange	Company	Price 11/18/97	Price 12/10/97	Price 1/6/98	Percent Change	Shares (Millions)	Market Capitalization
ATHM	NASD	@Home	\$20.25	\$23.56	\$22.63	-3.98%	117.52	\$2,658.91
AOL	NYSE	America Online Inc.	\$74.00	\$85.00	\$90.00	5.88%	95.86	\$8,627.22
CSRV	NASD	CompuServe Corp.	\$12.75	\$13.34	\$12.25	-8.20%	92.60	\$1,134.35
CNCX	NASD	Concentric Network Corp.	\$10.63	\$10.25	\$10.00	-2.44%	13.51	\$135.05
ELNK	NASD	EarthLink Network, Inc.	\$16.50	\$22.50	\$24.50	8.89%	9.68	\$237.06
IDTC	NASD	IDT Corporation	\$24.50	\$22.38	\$20.69	-7.54%	9.89	\$204.60
WWW	TSE	iSTAR internet inc.	\$0.62	\$0.62	\$0.52	-17.31%	24.43	\$12.62
MCOM	OTC	Metricom Inc.	\$12.03	\$12.06	\$9.25	-23.32%	13.61	\$125.87
MSPG	NASD	MindSpring Enterprises, Inc.	\$28.63	\$29.63	\$28.75	-2.95%	7.48	\$214.96
NETC	NASD	Netcom	\$18.81	\$20.75	\$22.75	9.64%	11.68	\$265.79
OZEMY	NASD	OzEmail Ltd.	\$9.88	\$9.50	\$9.56	0.66%	10.20	\$97.54
PSIX	NASD	PSINet Inc.	\$6.75	\$6.06	\$6.53	7.73%	40.27	\$263.04
RMII	NASD	Rocky Mountain Internet, Inc.	\$2.81	\$3.00	\$3.00	0.00%	4.65	\$13.95
ISP Report Index			\$18.32	\$19.90	\$20.03			\$13,990.96

ing is that the 2 percent number is good for ISPs under 50k users, and that the churn rate is actually higher once you cross the 50,000 users mark, and may run up towards 6-7 percent when you reach that size. I would expect that this number is actually going down as quality of service on the large dial-up networks is increasing."

Karl Ramonas, president/CEO of Micro-Net Online Services LLC (karl@micro-net.com) pointed out, "We find churn varies greatly based on several factors (since we have resellers of our networks, we get to see what works)." He cited "free" time, customer support quality, spamming "suppression" and the size

of your customers are factors that affect the churn rate.

A recently-filed Erols Internet, Inc. initial public offering documents says, "As of October 31, 1997, the Company's monthly churn rate was approximately 2 percent, which, the Company believes, is substantially below the prevailing industry average." No, they do not cite the source of their conjecture.

Reasonable answers, intelligent people, assorted data. Maybe they are all right under different sets of assumptions. Now let's change one number in my set of assumptions above. Let's make churn 3.5 percent per month (42 percent per

year) instead of the 2 percent originally assumed.

Chug, chug. I get a return on investment of 21.2 percent. Not too good considering I could have earned over 20 percent on my \$125,000 just by buying the S&P500 and drinking a margarita.

As industry growth slows, churn management will become an even more important number.

But all of the numbers above are important. Play around with them. See how small adjustments are the difference between a venture-style return on investment and a short-term treasury note.

I'm very interested in continuing to track and analyze these numbers. Any ISP also interested in examining this question further, can e-mail me at paul@rampart.net for further information. With enough interest and everyone's permission, I am willing to crunch some numbers and release some aggregated data which would preserve everyone's privacy while providing a little more insight. ♦

THE CHEAPEST ALTERNATIVE TO TELEPHONE GATEWAY

Add Value! Add Revenue!

mediaRing talk™



- ISP need not install any hardware or software
- Call anytime, anywhere in the world via the internet
- Flat rate of \$4.95/month, unlimited calls
- Patent pending software solution
- Free 30-day trial

mediacom
TECHNOLOGIES
sales.us@mediacom-tech.com

Looking for ISP partners.

Customer requires only a soundcard & mic.
PC need not be logged on to the internet to connect.

Download at www.mediacom-tech.com
voice 650-631-6198 • fax 650-631-6195

INVASION OF THE CUSTOMER SNATCHERS

**THE
TERRIFYING
TRUTH THAT
EVERY ISP
MUST FACE!**



77% of consumers surveyed
said they would switch to an ISP who
offered internet content filtering

See us at ISPCON
Booth #730

**Customers switch ISPs as often as three times per year. What can
you do to keep your customers from being snatched away?
Read on . . . if you dare!**

The ugly truth is . . .
to your customer there isn't
much difference between your
service and any other ISP. Local
numbers? Faster connections?
Lower rates? Everybody makes
those claims. You need a secret
weapon. Something that will
stop other ISPs from grabbing
your customers. You need
WebSENSE!

Parents, schools, cyber cafes
and businesses are all looking
for ways to manage access to
unwanted Internet content.
Offer WebSENSE to your
subscribers for a new and
innovative way to diversify
your services, maintain
customer loyalty and increase
your profits.

Installed and maintained at your
NAS, your customers can access
the power of WebSENSE
screening without the need to
install software or maintain
daily database updates on their
own machines. And, your
customers can customize up to
four access profiles through an
easy to use web based interface.

With its easy setup, low
maintenance, high profit
margins and the fact that
WebSENSE is the highest
rated screening product
available, WebSENSE is
your secret weapon in the
war against customer
snatching ISPs.

Get WebSENSE and get an edge on the competition. What have you got to lose except your customers?



CALL NOW TO JOIN THE WEBSENSE INTERNET SERVICE PROVIDER CONNECTION

PUBLISHED BY NETPARTNERS INTERNET SOLUTIONS INC. 9210 SKY PARK COURT • 1ST FLOOR SAN DIEGO • CA 92123
PHONE 1.800.723.1166 OR 1.619.505.3020 EMAIL SALES@NETPARTNERS.COM OUR WEBSITE: WWW.NETPARTNERS.COM

PC
WORLD
SENSE
INTERNET SCREENING SYSTEM

A PROPOSAL TO IMPROVE TECHNICAL MANAGEMENT OF INTERNET NAMES AND ADDRESSES DISCUSSION DRAFT 1/30/98

Domain names are the familiar and easy-to-remember names for Internet computers (e.g. "www.e-commerce.gov"). They map to unique Internet Protocol (IP) numbers (e.g. 98.37.241.30) that serve as routing addresses on the Internet. The domain name system (DNS) translates Internet names into the IP numbers needed for transmission of information across the network.

HISTORY

Today's Internet is an outgrowth of U.S. government investments in packet-switching technology and communications networks carried out under agreements with the Defense Advanced Research Projects Agency (DARPA), the National Science Foundation (NSF) and other U.S. research agencies. The government encouraged bottom-up development of networking technologies through work at NSF, which established the NSFNET as a network for research and education. The NSFNET fostered a wide range of applications, and in 1992 the U.S. Congress gave the National Science Foundation statutory authority to commercialize the NSFNET, which formed the basis for today's Internet.

As a legacy, major components of the domain name system are still performed by or subject to agreements with agencies of the U.S. government.

1) Assignment of numerical addresses to Internet users

Every Internet computer has a unique IP number. The Internet Assigned Numbers Authority (IANA), headed by Dr. Jon Postel of the Information Sciences Institute (ISI) at the University of Southern California, coordinates this system by allocating blocks of numerical addresses to regional IP registries (ARIN in North America, RIPE in Europe, and APNIC in the Asia/Pacific region), under contract with DARPA. In turn, larger Internet service providers apply to the regional IP registries for blocks of IP addresses. The recipients of those address blocks then reassign addresses to smaller Internet service providers and to end users.

The paper set forth below, concerning ways to improve technical management of the Internet Domain Name System, is a proposed rule of the Department of Commerce. This same document will be published in the Federal Register in the near future. While the Department will accept comments on the paper starting today, the Federal Register publication will establish the official deadline for the acceptance of public comment on this proposed rule. Comments may be mailed to U.S. Department of Commerce, NTIA/OIA, 14th and Constitution Avenue, N.W., Washington, D.C. 20230 or sent via electronic mail to dns@ntia.doc.gov. Though it is not intended or expected, should any discrepancy occur between the document set forth below and that published in the Federal Register, the Federal Register publication controls. All comments received will be considered exclusively in the context of issuing a final rule. The paper is being made available through the Internet solely as a means to facilitate the public's access to this document and to provide an additional means of notifying the public of the solicitation of public comment on the proposed rule.

2) Management of the system of registering names for Internet users

The domain name space is constructed as a hierarchy. It is divided into top-level domains (TLDs), with each TLD then divided into second-level domains (SLDs), and so on. More than 200 national, or country-code, TLDs (ccTLDs) are administered by their corresponding governments or by private entities with the appropriate national government's acquiescence. A small set of generic top-level domains (gTLDs) do not carry any national identifier, but denote the intended function of that portion of the domain space. For example, .com was established for commercial users, .org for not-for-profit organizations, and .net for network service providers. The registration and propagation of these key gTLDs are performed by Network Solutions, Inc. (NSI), a Virginia-based company, under a five-year cooperative agreement with NSF. This agreement includes an optional ramp-down period that expires on September 30, 1998.

3) Operation of the root server system

The root server system contains authoritative databases listing the TLDs so that an Internet message can be routed to its destination. Currently, NSI operates the "A" root server, which maintains the authoritative root database and replicates changes to the other root servers on a daily basis. Different organizations, including NSI, operate the other 12 root servers. In total, the U.S. government plays a direct role in the operation of half of the world's root servers. Universal connectivity on the Internet cannot be guaranteed without a set of authoritative and consistent roots.

4) Protocol Assignment

The Internet protocol suite, as defined by the Internet Engineering Task Force (IETF), contains many techni-

cal parameters, including protocol numbers, port numbers, autonomous system numbers, management information base object identifiers and others. The common use of these protocols by the Internet community requires that the particular values used in these fields be assigned uniquely. Currently, IANA, under contract with DARPA, makes these assignments and maintains a registry of the assigned values.

THE NEED FOR CHANGE

- From its origins as a U.S.-based research vehicle, the Internet is rapidly becoming an international medium for commerce, education and communication. The traditional means of organizing its technical functions need to evolve as well. The pressures for change are coming from many different quarters:
- There is widespread dissatisfaction about the absence of competition in domain name registration.
- Mechanisms for resolving conflict between trademark holders and domain name holders are expensive and cumbersome.
- Without changes, a proliferation of lawsuits could lead to chaos as tribunals around the world apply the antitrust law and intellectual property law of their jurisdictions to the Internet.
- Many commercial interests, staking their future on the successful growth of the Internet, are calling for a more formal and robust management structure.
- An increasing percentage of Internet users reside outside of the U.S., and those stakeholders want a larger voice in Internet coordination.
- As Internet names increasingly have commercial value, the decision to add new top-level domains cannot continue to be made on an ad hoc basis by entities or individuals that are not formally accountable to the Internet community.
- As the Internet becomes commercial, it becomes inappropriate for U.S. research agencies (NSF and DARPA) to participate in and fund these functions.

THE FUTURE ROLE OF THE U.S. GOVERNMENT IN THE DNS

On July 1, 1997, as part of the Clinton Administration's Framework for Global Electronic Commerce, the President directed the Secretary of Commerce to privatize, increase competition in, and promote international participation in the domain name system.

Accordingly, on July 2, 1997, the Department of Commerce issued a Request for Comments (RFC) on DNS administration, on behalf of an inter-agency working group previously formed to explore the appropriate future role of the U.S. government in the DNS. The RFC solicited public input on issues relating to the overall framework of the DNS system, the creation of new top-level domains, policies for registrars, and trademark issues. During the comment period, over 430 comments were received, amounting to some 1500 pages.(1)

This discussion draft, shaped by the public input described above, provides notice and seeks public comment on a proposal to improve the technical management of Internet names and addresses. It does not propose a monolithic structure for

Internet governance. We doubt that the Internet should be governed by one plan or one body or even by a series of plans and bodies. Rather, we seek to create mechanisms to solve a few, primarily technical (albeit critical) questions about administration of Internet names and numbers.

PRINCIPLES FOR A NEW SYSTEM

Our consultations have revealed substantial differences among Internet stakeholders on how the domain name system should evolve. Since the Internet is changing so rapidly, no one entity or individual can claim to know what is best for the Internet. We certainly do not believe that our views are uniquely prescient. Nevertheless, shared principles have emerged from our discussions with Internet stakeholders.

1. Stability

The U.S. government should end its role in the Internet number and name address systems in a responsible manner. This means, above all else, ensuring the stability of the Internet. The Internet functions well today, but its current technical management is probably not viable over the long term. We should not wait for it to break down before acting. Yet, we should not move so quickly, or depart so radically from the existing structures, that we disrupt the functioning of the Internet. The introduction of a new system should not disrupt current operations, or create competing root systems.

2. Competition

The Internet succeeds in great measure because it is a decentralized system that encourages innovation and maximizes individual freedom. Where possible, market mechanisms that support competition and consumer choice should drive the technical management of the Internet because they will promote innovation, preserve diversity, and enhance user choice and satisfaction.

3. Private, Bottom-Up Coordination

Certain technical management functions require coordination. In these cases, responsible, private-sector action is preferable to government control. A private coordinating process is likely to be more flexible than government and to move rapidly enough to meet the changing needs of the Internet and of Internet users. The private process should, as far as possible, reflect the bottom-up governance that has characterized development of the Internet to date.

4. Representation

Technical management of the Internet should reflect the diversity of its users and their needs. Mechanisms should be established to ensure international input in decision making.

In keeping with these principles, we divide the name and number functions into two groups, those that can be moved to a competitive system and those that should be coordinated. We then suggest the creation of a representative, not-for-profit corporation to manage the coordinated functions according to widely accepted objective criteria. We then suggest the steps necessary to move to competitive markets in those areas that can be market driven. Finally, we suggest a transition plan to ensure that these changes occur in an orderly fashion that preserves the stability of the Internet.

THE PROPOSAL

The Coordinated Functions

Management of number addresses is best done on a coordinated basis. As technology evolves, changes may be needed in the number allocation system. These changes should also be undertaken in a coordinated fashion.

Similarly, coordination of the root server network is necessary if the whole system is to work smoothly. While day-to-day operational tasks, such as the actual operation and maintenance of the Internet root servers, can be contracted out, overall policy guidance and control of the TLDs and the Internet root server system should be vested in a single organization that is representative of Internet users.

Finally, coordinated maintenance and dissemination of the protocol parameters for Internet addressing will best preserve the stability and interconnectivity of the Internet.

We propose the creation of a private, not-for-profit corporation (the new corporation) to manage the coordinated functions in a stable and open institutional framework. The new corporation should operate as a private entity for the benefit of the Internet as a whole. The new corporation would have the following authority:

1. To set policy for and direct the allocation of number blocks to regional number registries for the assignment of Internet addresses;
2. To oversee the operation of an authoritative root server system;
3. To oversee policy for determining, based on objective criteria clearly established in the new organization's charter, the circumstances under which new top-level domains are added to the root system; and
4. To coordinate the development of other technical protocol parameters as needed to maintain universal connectivity on the Internet.

The U.S. government would gradually transfer existing IANA functions, the root system and the appropriate databases to this new not-for-profit corporation. This transition would commence as soon as possible, with operational responsibility moved to the new entity by September 30, 1998. The U.S. government would participate in policy oversight to assure stability until the new corporation is established and stable, phasing out as soon as possible and in no event later than September 30, 2000. The U.S. Department of Commerce will coordinate the U.S. government policy role. In proposing these dates, we are trying to balance concerns about a premature U.S. government exit that turns the domain name system over to a new and untested entity against the concern that the U.S. government will never relinquish its current management role.

The new corporation will be funded by domain name registries and regional IP registries. Initially, current IANA staff will move to this new organization to provide continuity and expertise throughout the period of time it takes to establish the new corporation. The new corporation should hire a chief executive officer with a background in the corporate sector to bring a more rigorous management to the organization than was pos-

sible or necessary when the Internet was primarily a research medium. As these functions are now performed in the United States, the new corporation will be headquartered in the United States, and incorporated under U.S. law as a not-for-profit corporation. It will, however, have and report to a board of directors from around the world.

It is probably impossible to establish and maintain a perfectly representative board for this new organization. The Internet community is already extraordinarily diverse and likely to become more so over time. Nonetheless, the organization and its board must derive legitimacy from the participation of key stakeholders. Since the organization will be concerned mainly with numbers, names and protocols, its board should represent membership organizations in each of these areas, as well as the direct interests of Internet users.

The board of directors for the new corporation should be balanced to equitably represent the interests of IP number registries, domain name registries, domain name registrars, the technical community, and Internet users (commercial, not-for-profit, and individuals). Officials of governments or intergovernmental organizations should not serve on the board of the new corporation. Seats on the initial board might be allocated as follows:

1. Three directors from a membership association of regional number registries, representing three different regions of the world. Today this would mean one each from ARIN, APNIC and RIPE. As additional regional number registries are added, board members could be designated on a rotating basis or elected by a membership organization made up of regional registries. ARIN, RIPE and APNIC are open membership organizations that represent entities with large blocks of numbers. They have the greatest stake in and knowledge of the number address system. They are also representative internationally.
2. Two members designated by the Internet Architecture Board (IAB), an international membership board that represents the technical community of the Internet.
3. Two members designated by a membership association (to be created) representing domain name registries and registrars.
4. Seven members designated by a membership association (to be created) representing Internet users. At least one of those board seats could be designated for an individual or entity engaged in non-commercial, not-for-profit use of the Internet, and one for individual end users. The remaining seats could be filled by commercial users, including trademark holders.
5. The CEO of the new corporation would serve on the board of directors.

The new corporation's processes should be fair, open and pro-competitive, protecting against capture by a narrow group of stakeholders. Its decision-making processes should be sound and transparent; the bases for its decisions should be recorded and made publicly available. Super-majority or even consensus requirements may be useful to protect against capture by a self-interested faction. The new corporation's charter should provide a mechanism whereby its governing body will evolve to reflect changes in the constituency of Internet stakeholders.

"This is THE future in remote access, right here."

—Jason Perlow



INTERCHANGE VS 1000/1100

"We are very impressed with the InterChangeVS 1000. We set it up in a closed lab environment on a switched Ethernet segment using Compaq® ProLiant® servers—needless to say, the installation of the product is a no-brainer. You simply install NT 4.0 and NT Service Pack 3, and then install the VS1000 driver as if it were a network adapter driver. Then add the MAC address—or multiple VS1000 MAC addresses, if you want! In the VS1000 configuration applet, load RAS, and with a single reboot you are ready to go! The RAS server instantly thinks it has 16 or more com ports!

"I think the whole thing, once NT was installed, took 10-15 minutes—if that. ... When using an AT&T Comsphere 3820+ modem on one of the ports, I get consistent 28.8 connections—I have never seen any other product do that! The port monitoring software and statistics are also VERY neat. This is THE future in remote access, right here. All in all, I would like to congratulate Control on a very well-designed product."



—Jason Perlow
President
Argonaut Systems

Transform your existing file and application servers into powerful remote access servers that will rival anything on the market today—or tomorrow.

Remote Access-Enable Your Existing Server

You'll be surprised at how easily servers running remote access-enabled Microsoft® Windows NT® or Novell® IntranetWare™ transform into remote access servers when using Control's InterChangeVS™ products.

Easy-to-Use, Expandable, Supported Remote Access Products from A Proven Leader

Control's InterChangeVS 1000 asynchronous multiport virtual server is yet another innovation in remote access from the company that invented the first multiport serial controller for PCs, and improves remote access connectivity in many ways, including:

- Delivers PC-to-LAN access with the flexibility and power of a stand-alone server and the compatibility and cost-effectiveness of a multiport server card.
- Supports Windows NT RAS/RRAS, NetWare® Connect, and MPR wide-area networking capabilities.
- Connects quickly and easily to the Ethernet—so your components are more scalable, easier to maintain, and can be located virtually anywhere, locally or remotely, via bridging.
- Provides 16 asynchronous base ports and 16-port VS1100 expansion units to meet higher port-density requirements (up to 256 ports per host server, unlimited servers).

For more information about Control's award-winning products and exceptional support, call Control today at 800-926-6876!



900 Long Lake Road
St. Paul, MN 55112

Fax: 612-631-8117

<http://www.control.com>

e-mail: info@control.com

The new corporation should establish an open process for the presentation of petitions to expand board representation.

In performing the functions listed above, the new corporation will act much like a standard-setting body. To the extent that the new corporation operates in an open and pro-competitive manner, its actions will withstand antitrust scrutiny. Its standards should be reasonably based on, and no broader than necessary to promote its legitimate coordinating objectives. Under U.S. law, a standard-setting body can face antitrust liability if it is dominated by an economically interested entity, or if standards are set in secret by a few leading competitors. But appropriate processes and structure will minimize the possibility that the body's actions will be, or will appear to a court to be, anticompetitive.

The Competitive Functions

The system for registering second-level domain names and the management of the TLD registries should become competitive and market-driven.

In this connection, we distinguish between registries and registrars. A "registry," as we use the term, is responsible for maintaining a TLD's zone files, which contain the name of each SLD in that TLD and each SLD's corresponding IP number. Under the current structure of the Internet, a given TLD can have no more than one registry. A "registrar" acts as an interface between domain-name holders and the registry, providing registration and value-added services. It submits to the registry zone file information and other data (including contact information) for each of its customers in a single TLD. Currently, NSI acts as both the exclusive registry and as the exclusive registrar for .com, .net, .org, and .edu.

Both registry and registrar functions could be operated on a competitive basis. Just as NSI acts as the registry for .com, .net, and .org, other companies could manage registries with different TLDs such as .vend or .store. Registrars could provide the service of obtaining domain names for customers in any gTLD. Companies that design Web sites for customers might, for example, provide registration as an adjunct to other services. Other companies may perform this function as a stand-alone business.

There appears to be strong consensus that, at least at this time, domain name registration - the registrar function - should be competitive. There is disagreement, however, over the wisdom of promoting competition at the registry level.

Some have made a strong case for establishing a market-driven registry system. Competition among registries would allow registrants to choose among TLDs rather than face a single option. Competing TLDs would seek to heighten their efficiency, lower their prices, and provide additional value-added services. Investments in registries could be recouped through branding and marketing. The efficiency, convenience, and service levels associated with the assignment of names could ultimately differ from one TLD registry to another. Without these types of market pressures, they argue, registries will have very little incentive to innovate.

Others feel strongly, however, that if multiple registries are to exist, they should be undertaken on a not-for-profit basis. They argue that lack of portability among registries (that is, the fact that users cannot change registries without adjusting at least

part of their domain name string) could create lock-in problems and harm consumers. For example, a registry could induce users to register in a top-level domain by charging very low prices initially and then raise prices dramatically, knowing that name holders will be reluctant to risk established business by moving to a different top-level domain.

We concede that switching costs and lock-in could produce the scenario described above. On the other hand, we believe that market mechanisms may well discourage this type of behavior. On balance, we believe that consumers will benefit from competition among market oriented registries, and we thus support limited experimentation with competing registries during the transition to private sector administration of the domain name system.

The Creation of New gTLDs

Internet stakeholders disagree about who should decide when a new top-level domain can be added and how that decision should be made. Some believe that anyone should be allowed to create a top-level domain registry. They argue that the market will decide which will succeed and which will not. Others believe that such a system would be too chaotic and would dramatically increase customer confusion. They argue that it would be far more complex technically, because the root server system would have to point to a large number of top-level domains that were changing with great frequency. They also point out that it would be much more difficult for trademark holders to protect their trademarks if they had to police a large number of top-level domains.

All these arguments have merit, but they all depend on facts that only further experience will reveal. At least in the short run, a prudent concern for the stability of the system requires that expansion of gTLDs proceed at a deliberate and controlled pace to allow for evaluation of the impact of the new gTLDs and well-reasoned evolution of the domain space. The number of new top-level domains should be large enough to create competition among registries and to enable the new corporation to evaluate the functioning, in the new environment, of the root server system and the software systems that enable shared registration. At the same time, it should not be so large as to destabilize the Internet.

We believe that during the transition to private management of the DNS, the addition of up to five new registries would be consistent with these goals. At the outset, we propose that each new registry be limited to a single top-level domain. During this period, the new corporation should evaluate the effects that the addition of new gTLDs have on the operation of the Internet, on users, and on trademark holders. After this transition, the new corporation will be in a better position to decide whether or when the introduction of additional gTLDs is desirable.

Individual companies and consortia alike may seek to operate specific generic top-level domains. Competition will take place on two levels. First, there will be competition among different generic top-level domains. Second, registrars will compete to register clients into these generic top-level domains. By contrast, existing national registries will continue to administer country-code top-level domains if these national government seek to assert those rights. Changes in the registration process for these domains are up to the registries administering them and their respective national governments.

GO WHERE NO RADIUS SERVER HAS GONE BEFORE

Proxy & Roaming RADIUS Server

Advanced logging and reporting tools
Self-monitoring service via unique VOPWatch technology
Proxy Authentication

1. Authenticate users from configurable cache while RADIUS Server is down
2. Configurable generic authentication when user is not in cache

Roaming Redirection

1. Expand into other regions through peer roaming agreements with other ISP's
2. No need for a central service bureau to control all logon requests
3. Add & remove roaming partners as you wish

**High Performance and Robust 32-bit
Multi-Threaded NT 4.0 Services**

User Authentication from ANY RADIUS Server

VOPMail Server

Support POP3, IMAP4
Advanced anti-spamming rule-based logic
Multi-homing, Mailing lists & Auto-responder
Remote management console

Alternate user storage in NT registry, NT domain or ODBC data source
HTML POP3 interface for user to read/write emails within browser (April '98)

Voice: (514) 990-2532
Fax: (514) 523-6990
E-mail: sales@vircom.com
WWW: <http://www.vircom.com>

Come See Us at
ISPCON'98
Booth #570



Some have called for the creation of a more descriptive system of top-level domains based on industrial classifications or some other easy to understand schema. They suggest that having multiple top-level domains is already confusing and that the addition of new generic TLDs will make it more difficult for users to find the companies they are seeking.

Market driven systems result in innovation and greater consumer choice and satisfaction in the long run. We expect that in the future, directory services of various sorts will make it easy for users to find the sites they seek regardless of the number of top-level domains. Attempts to impose too much central order risk stifling a medium like the Internet that is decentralized by nature and thrives on freedom and innovation.

The Trademark Dilemma

It is important to keep in mind that trademark/domain name disputes arise very rarely on the Internet today. NSI, for example, has registered millions of domain names, only a tiny fraction of which have been challenged by a trademark owner. But where a trademark is unlawfully used as a domain name, consumers may be misled about the source of the product or service offered on the Internet, and trademark owners may not be able to protect their rights without very expensive litigation.

For cyberspace to function as an effective commercial market, businesses must have confidence that their trademarks can be protected. On the other hand, management of the Internet must respond to the needs of the Internet community as a whole, and not trademark owners exclusively. The balance we strike is to provide trademark holders with the same rights they have in the physical world, to ensure transparency, to guarantee a dispute resolution mechanism with resort to a court system, and to add new top-level domains carefully during the transition to private sector coordination of the domain name system.

There are certain steps that could be taken in the application process that would not be difficult for an applicant, but that would make the trademark owner's job easier. For instance, gTLD registrants could supply basic information — including the applicant's name and sufficient contact information to be able to locate the applicant or its representative. To deter the pirating of domain names, the registry could also require applicants to certify that it knows of no entity with superior rights in the domain name it seeks to register.

The job of policing trademarks could be considerably easier if domain name databases were readily searchable through a common interface to determine what names are registered, who holds those domain names, and how to contact a domain name holder. Many trademark holders find the current registration search tool, Whois, too limited in its functioning to be effective for this purpose. A more robust and flexible search tool, which features multiple field or string searching and retrieves similar names, could be employed or developed to meet the needs of trademark holders. The databases also could be kept up to date by a requirement that domain name registrants maintain up-to-date contact information.

Mechanisms that allow for on-line dispute resolution could provide an inexpensive and efficient alternative to litigation for resolving disputes between trademark owners and domain name registrants. A swift dispute resolution process could provide for the temporary suspension of a domain name registra-

tion if an adversely affected trademark holder objects within a short time, e.g. 30 days, of the initial registration. We seek comment on whether registries should be required to resolve disputes within a specified period of time after an opposition is filed, and if so, how long that period should be.

Trademark holders have expressed concern that domain name registrants in faraway places may be able to infringe their rights with no convenient jurisdiction available in which the trademark owner could file suit to protect those rights. At the time of registration, registrants could agree that, in the event of a trademark dispute involving the name registered, jurisdiction would lie where the registry is domiciled, where the registry database is maintained, or where the "A" root server is maintained. We seek comment on this proposal, as well as suggestions for how such jurisdictional provisions could be implemented.

Trademark holders have also called for the creation of some mechanism for "clearing" trademarks, especially famous marks, across a range of gTLDs. Such mechanisms could reduce trademark conflict associated with the addition of new gTLDs. Again, we seek comment on this proposal, and suggested mechanisms for trademark clearance processes.

We stop short of proposals that could significantly limit the flexibility of the Internet, such as waiting periods or not allowing any new top-level domains.

We also do not propose to establish a monolithic trademark dispute resolution process at this time, because it is unclear what system would work best. Even trademark holders we have consulted are divided on this question. Therefore, we propose that each name registry must establish minimum dispute resolution and other procedures related to trademark considerations. Those minimum procedures are spelled out in Appendix 2. Beyond those minimums, registries would be permitted to establish additional trademark protection and trademark dispute resolution mechanisms.

We also propose that shortly after their introduction into the root, a study be undertaken on the effects of adding new gTLDs and related dispute resolution procedures on trademark and intellectual property right holders. This study should be conducted under the auspices of a body that is internationally recognized in the area of dispute resolution procedures, with input from trademark and domain name holders and registries. The findings of this study should be submitted to the board of the new corporation and considered when it makes decisions on the creation and introduction of new gTLDs. Information on the strengths and weaknesses of different dispute resolution procedures should also give the new corporation guidance for deciding whether the established minimum criteria for dispute resolution should be amended or maintained. Such a study could also provide valuable input with respect to trademark harmonization generally.

U.S. trademark law imposes no general duty on a registrar to investigate the propriety of any given registration.⁽²⁾ Under existing law, a trademark holder can properly file a lawsuit against a domain name holder that is infringing or diluting the trademark holder's mark. But the law provides no basis for holding that a registrar's mere registration of a domain name, at the behest of an applicant with which it has an arm's-length relationship, should expose it to liability.⁽³⁾ Infringers, rather than registrars, registries, and technical management bodies,

*Web statistics for your customers,
extra income for your ISP business
and our \$5,000 software for FREE!*

Are We Insane?

No, we simply understand your needs. That's why we created the NetTracker® ISP Partners Program. Our ISP Partners Program allows you to give your virtually hosted customers the detailed web site traffic reports that they need using NetTracker; our powerful, yet easy-to-use usage tracking software. While at the same time, increasing your web hosting revenues.

NetTracker is perfect for ISPs and other businesses that host web sites because the software only has to be installed on your web server once. NetTracker generates a unique URL for each of your virtually hosted customers to view their web site statistics (with a user name and password). Just set your web server to update your customers' reports automatically and your job is done.

Best of all, we are giving a FREE copy of NetTracker 3.5 ISP (\$4,995 value) to qualified ISPs and web hosting companies. The only catch is that we will invoice you a small monthly fee (too low to print) for each of your virtually hosted customers using NetTracker. Simply charge your customers a slightly larger fee to access their NetTracker reports and you pocket the difference. Or, you can absorb the cost and include access to your customers' reports as part of your high-end web hosting packages. BTW, you do not have to keep track of which of your customers are using NetTracker – we will automatically send you an itemized invoice each month.

You're probably saying that this sounds too good to be true. But as we said, we understand the ISP business and know that most ISPs want a simple and inexpensive solution for their customers' usage tracking requirements. With over 200 ISPs enrolled in the NetTracker ISP Partners Program in the past year, we must be doing something right.

NetTracker is available for UNIX (most flavors) and Windows® 95/NT web server platforms and supports Apache, Netscape®, Microsoft® IIS, O'Reilly WebSite™ and many other web servers.

For more information about the NetTracker ISP Partners Program, point your web browser at <http://www.sane.com/boardwatch/> or give us a call at 1-800-407-3570.

Just contact us soon... You never know when we'll have to go back to the asylum. ;)



*NetTracker reports can be accessed
via the Internet from any location
using standard web browsers such as
Netscape Communicator or
Microsoft Internet Explorer.*

NET TRACKER®

Usage Tracking Software

should be liable for trademark infringement. Until case law is fully settled, however, registries can expect to incur legal expenses in connection with trademark disputes as a cost of doing business. These costs should not be borne by the new not-for-profit corporation, and therefore registries should be required to indemnify the new corporation for costs incurred in connection with trademark disputes. The evolution of litigation will be one of the factors to be studied by the group tasked to review Internet trademark issues as the new structure evolves.

The Intellectual Infrastructure Fund

In 1995, NSF authorized NSI to assess new domain name registrants a \$50 fee per year for the first two years, 30 percent of which was to be deposited in a fund for the preservation and enhancement of the intellectual infrastructure of the Internet (the "Intellectual Infrastructure Fund")

In excess of \$46 Million has been collected to date. In 1997, Congress authorized the crediting of \$23 Million of the funds collected to the Research and Related Activities Appropriation of the National Science Foundation to support the development of the Next Generation Internet. The establishment of the Intellectual Infrastructure Fund currently is the subject of litigation in the U.S. District Court for the District of Columbia.

As the U.S. government is seeking to end its role in the domain name system, we believe the provision in the cooperative agreement regarding allocation of a portion of the registration fee to the Internet Intellectual Infrastructure Fund should terminate on April 1, 1998, the beginning of the ramp-down period of the cooperative agreement.

THE TRANSITION

A number of steps must be taken to create the system envisioned in this paper.

1. The new not-for-profit organization must be established and its board chosen.
2. The membership associations representing 1) registries and registrars, and 2) Internet users, must be formed.
3. An agreement must be reached between the U.S. government and the current IANA on the transfer of IANA functions to the new organization.
4. NSI and the U.S. government must reach agreement on the terms and conditions of NSI's evolution into one competitor among many in the registrar and registry marketplaces. A level playing field for competition must be established.
5. The new corporation must establish processes for determining whether an organization meets the transition period criteria for prospective registries and registrars.
6. A process must be laid out for making the management of the root server system more robust and secure, and, for transitioning that management from U.S. government auspices to those of the new corporation.

The NSI Agreement

The U.S. government will ramp down the NSI cooperative agreement and phase it out by the end of September 1998. The ramp down agreement with NSI should reflect the following terms and conditions designed to promote competition in the domain name space.

1. NSI will effectively separate and maintain a clear division between its current registry business and its current registrar business. NSI will continue to operate .com, .net and .org but on a fully shared-registry basis; it will shift operation of .edu to a not-for-profit entity. The registry will treat all registrars on a nondiscriminatory basis and will price registry services according to an agreed upon formula for a period of time.
2. As part of the transition to a fully shared-registry system, NSI will develop (or license) and implement the technical capability to share the registration of its top-level domains with any registrar so that any registrar can register domain names there in as soon as possible, by a date certain to be agreed upon.
3. NSI will give the U.S. government a copy and documentation of all the data, software, and appropriate licenses to other intellectual property generated under the cooperative agreement, for use by the new corporation for the benefit of the Internet.
4. NSI will turn over control of the "A" root server and the management of the root server system when instructed to do so by the U.S. government.
5. NSI will agree to meet the requirements for registries and registrars set out in Appendix 1.

Competitive Registries, Registrars, and the Addition of New gTLDs

Over the past few years, several groups have expressed a desire to enter the registry or registrar business. Ideally, the U.S. government would stay its hand, deferring the creation of a specific plan to introduce competition into the domain name system until such time as the new corporation has been organized and given an opportunity to study the questions that such proposals raise. Should the transition plan outlined below, or some other proposal, fail to achieve substantial consensus, that course may well need to be taken.

Realistically, however, the new corporation cannot be established overnight. Before operating procedures can be established, a board of directors and a CEO must be selected. Under a best case scenario, it is unlikely that the new corporation can be fully operational before September 30, 1998. It is our view, based on widespread public input, that competition should be introduced into the DNS system more quickly.

We therefore set out below a proposal to introduce competition into the domain name system during the transition from the existing U.S. government authority to a fully functioning coordinating body. This proposal is designed only for the transition period. Once the new corporation is formed, it will assume authority over the terms and conditions for the admission of new top-level domains.



Your
customers
will endure
almost anything.
Except waiting.

The ACEswitch™ ends the pain of the world wide wait, delivering 200 times the performance at half the cost of other server load balancers.

If you're paying through the nose for server load balancers that can't keep up, you're in for a shock. The ACEswitch from Alteon Networks defines a new class of device that combines three products, bringing a swift end to Internet and intranet slowdowns. Loaded with our award-winning ACElerate™ software, the ACEswitch combines server load balancing with the ability to redirect web traffic to local caches—integrating it all within an ultra high-performance switch. And, at under \$12,000, the ACEswitch is a fraction of the

The
difference
will shock
you.™

cost of other load balancers.

With ACEswitch, you can speed user response times. Scale server capacity. Cut WAN bandwidth costs. Reduce network complexity. Increase the availability of server-based services. *PC Week Labs* called ACEswitch, "the highest performing load balancer we've seen."

There's no reason to wait.

Try the ACEswitch and ACElerate for 30 days. If you like it, we'll give you 50% off your first purchase. It won't hurt a bit.

Visit our web site to find
out more about ACEswitch
and ACElerate:
www.alteon.com/shocked.html



Alteon Networks
THE SERVER SWITCHING COMPANY

Alteon Networks, Inc. • 6351 San Ignacio Avenue, San Jose, CA 95119 • Tel: 408-360-5500 Fax: 408-360-5501

© 1998 Alteon Networks, Inc. All rights reserved. Alteon, ACEswitch and ACElerate are trademarks of Alteon Networks, Inc.

Registries and new gTLDs

This proposal calls for the creation of up to five new registries, each of which would be initially permitted to operate one new gTLD. As discussed above, that number is large enough to provide valuable information about the effects of adding new gTLDs and introducing competition at the registry level, but not so large as to threaten the stability of the Internet during this transition period. In order to designate the new registries and gTLDs, IANA must establish equitable, objective criteria and processes for selecting among a large number of individuals and entities that want to provide registry services. Unsuccessful applicants will be disappointed.

We have examined a number of options for recognizing the development work already underway in the private sector. For example, some argue for the provision of a "pioneer preference" or other grandfathering mechanism to limit the pool of would-be registrants to those who, in response to previous IANA requests, have already invested in developing registry businesses. While this has significant appeal and we do not rule it out, it is not an easy matter to determine who should be in that pool. IANA would be exposed to considerable liability for such determinations, and required to defend against charges that it acted in an arbitrary or inequitable manner. We welcome suggestions as to whether the pool of applicants should be limited, and if so, on what basis.

We propose, that during the transition, the first five entities (whether from a limited or unlimited pool) to meet the technical, managerial, and site requirements described in Appendix 1 will be allowed to establish a domain name registry. The IANA will engage neutral accounting and technical consultancy firms to evaluate a proposed registry under these criteria and certify an applicant as qualified. These registries may either select, in order of their qualification, from a list of available gTLDs or propose another gTLD to IANA. (We welcome suggestions on the gTLDs that should be immediately available and would propose a list based on that input, as well as any market data currently available that indicates consumer interest in particular gTLDs.)

The registry will be permitted to provide and charge for value-added services, over and above the basic services provided to registrars. At least at this time, the registry must, however, operate on a shared registry basis, treating all registrars on a nondiscriminatory basis, with respect to pricing, access and rules. Each TLD's registry should be equally accessible to any qualified registrar, so that registrants may choose their registrars competitively on the basis of price and service. The registry will also have to agree to modify its technical capabilities based on protocol changes that occur in Internet technology so that interoperability can be preserved. At some point in the future, the new organization may consider the desirability of allowing the introduction of non-shared registries.

Registrars

Any entity will be permitted to provide registrar services as long as it meets the basic technical, managerial, and site requirements as described in Appendix 1 of this paper. Registrars will be allowed to register clients into any top-level domain for which the client satisfies the eligibility rules, if any.

The Root Server System

IANA and the U.S. government, in cooperation with NSI, the IAB, and other relevant organizations will undertake a review of the root server system to recommend means to increase the security and professional management of the system. The recommendations of the study should be implemented as part of the transition process to the new corporation.

The .us Domain

At present, the IANA administers .us as a locality based hierarchy in which second-level domain space is allocated to states and US territories.⁽⁴⁾ This name space is further subdivided into localities. General registration under localities is performed on an exclusive basis by private firms that have requested delegation from IANA. The .us name space has typically been used by branches of state and local governments, although some commercial names have been assigned. Where registration for a locality has not been delegated, the IANA itself serves as the registrar.

Some in the Internet community have suggested that the pressure for unique identifiers in the .com gTLD could be relieved if commercial use of the .us space was encouraged. Commercial users and trademark holders, however, find the current locality-based system too cumbersome and complicated for commercial use. Expanded use of the .us TLD could alleviate some of the pressure for new generic TLDs and reduce conflicts between American companies and others vying for the same domain name.

Clearly, there is much opportunity for enhancing the .us domain space, and the .us domain could be expanded in many ways without displacing the current geopolitical structure. Over the next few months, the U.S. government will work with the private sector and state and local governments to determine how best to make the .us domain more attractive to commercial users. It may also be appropriate to move the gTLDs traditionally reserved for U.S. government use (i.e. .gov and .mil), into a reformulated .us ccTLD.

The U.S. government will further explore and seek public input on these issues through a separate Request for Comment on the evolution of the .us name space. However, we welcome any preliminary comments at this time.

The Process

The U.S. government recognizes that its unique role in the Internet domain name system should end as soon as is practical. We also recognize an obligation to end this involvement in a responsible manner that preserves the stability of the Internet. We cannot cede authority to any particular commercial interest or any specific coalition of interest groups. We also have a responsibility to oppose any efforts to fragment the Internet, as this would destroy one of the key factors - interoperability - that has made the Internet so successful.

Our goal is to seek as strong a consensus as possible so that a new, open, and accountable system can emerge that is legitimate in the eyes of all Internet stakeholders. It is in this spirit that we present this paper for discussion.

Spring'98 Voice On the Net[®]

Focusing On the Convergence of PSTN and IP Networks

**March 31-April 2
Fairmont Hotel
San Jose, CA**

*Also, Don't Miss
Internet Telephony:
One-On-One with
Jeff Pulver*

*March 2, Los Angeles, CA
March 16, Baltimore, MD
For more info see:
<http://pulver.com/tour98>*

Presented by pulver.com

The Voice of Telephony On the 'Net

Jeff Pulver, president of pulver.com, Inc. and one of the Net pioneers in the field of Internet Telephony and Net Broadcasting, developed this conference. First as a hobbyist and then as an Internet Technologist, Jeff has been tracking enabling and emerging net technologies since 1994.

The Conferences and Workshops which pulver.com produces are known for their focus on leading edge technologies and for bringing together the people who help drive the industry forward, thereby creating great business networking opportunities for all conference delegates.

Jeff is also moderator of the VON mailing list and publisher of The Pulver Report. Jeff has been a leading advocate for these technologies since the birth of the industry.

As founder of the Voice on the Net Coalition, Jeff is also outspoken with regard to his own viewpoints about the attempts by some to implement regulations to the 'Net.

Why Attend Spring'98 VON?

If you are a player in this industry, you should attend and take advantage of the major international business networking opportunities this event presents. Fall '97 Voice on the Net ("VON") attracted over 800 people representing all of the major continents except Antarctica, and we are expecting an even larger group of delegates in San Jose. Over thirty five percent of the attending delegates at the '97 conference were from outside the United States.

At Spring '98 VON there will be over 50 exhibitors: giving you a chance to catch up with the latest technologies which will be driving the industry during 1998. During the past three years the Internet Telephony Industry has started to mature and many of the companies which have started to implement these technologies are Carriers, ISPs and Enterprise Users. At Spring '98 VON you will have a chance to meet some of the early adopters and during selected conference sessions listen to their first hand experiences using IP Voice technologies.

Pre-Conference Workshops

The NextGen Telco Summit

The H.323 Workshop
Morning: H.323 Version 2.0 (Databeam)
Afternoon: H.323 Gatekeepers (elemedia)

PSTN/IP Gateways: Company
Perspectives and Product Overviews

Industry Perspectives

Roger Boyce, Ascend
Eric Sumner, Lucent
Lee Quintanar, US WEST
John Peters, Concentric Network
Joe Rinde, WorldCom MCI
John Ludwig, Microsoft
Tom Evslin, ITXC

General Sessions

VON Standards Update;
IETF, ETSI, IMTC
NextGen Telcos: Report from the Field
Delto Three, OzEmail, Glocalnet
Effect of VON on Carriers:
Analysts' Perspectives
Frost & Sullivan, Dataquest, Probe

Who Will Be Attending

CEOs, Presidents and Managing Directors;
Venture Capitalists, Investment Bankers,
Management Consultants; Companies
implementing VON technologies; PTT's,
PTO's, RBOC's, long distance/
interexchange carriers; internet and
online service providers, cable companies
and other service providers;
Telecommunication companies, resellers;
Software companies; and PC
manufacturers.

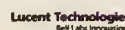
For More Info

<http://pulver.com/von98>
email: von98@pulver.com
phone: 1.516.753.2640
fax: 1.516.293.3996

510 Broadhollow Road
Suite 306
Melville, NY 11747
U.S.A.

pulver.com[®]

©Pulver.com, Inc. All Reserved.
All other trademarks are registered
with their respective companies.



Appendix 1

Recommended Registry and Registrar Requirements

In order to ensure the stability of the Internet's domain name system, protect consumers, and preserve the intellectual property rights of trademark owners, all registries of generic top-level domain names must meet the set of technical, managerial, and site requirements outlined below. Only prospective registries that meet these criteria will be allowed by IANA to register their gTLD in the "A" server. If, after it begins operations, a registry no longer meets these requirements, IANA may transfer management of the domain names under that registry's gTLD to another organization.

Independent testing, reviewing, and inspection called for in the requirements for registries should be done by appropriate certifying organizations or testing laboratories rather than IANA itself, although IANA will define the requirements and the procedures for tests and audits.

These requirements apply only to generic TLDs. They will apply to both existing gTLDs (e.g., .com, .edu., .net, .org) and new gTLDs. Although they are not required to, we expect many ccTLD registries and registrars may wish to assure their customers that they meet these requirements or similar ones.

Registries will be separate from registrars and have only registrars as their customers. If a registry wishes to act both as registry and registrar for the same TLD, it must do so through separate subsidiaries. Appropriate accounting and confidentiality safeguards shall be used to ensure that the registry subsidiary's business is not utilized in any manner to benefit the registrar subsidiary to the detriment of any other registrar.

Each top-level domain (TLD) database will be maintained by only one registry and, at least initially, each new registry can host only one TLD.

Registry requirements:

1. An independently-tested, functioning DATABASE AND COMMUNICATIONS SYSTEM that:
 - a. Allows multiple competing registrars to have secure access (with encryption and authentication) to the database on an equal (first-come, first-served) basis.
 - b. Is both robust (24 hours per day, 365 days per year) and scalable (i.e., capable of handling high volumes of entries and inquiries).
 - c. Has multiple high-throughput (i.e., at least T1) connections to the Internet via at least two separate Internet Service Providers.
 - d. Includes a daily data backup and archiving system.
 - e. Incorporates a record management system that maintains copies of all transactions, correspondence, and communications with registrars for at least the length of a registration contract.
 - f. Features a searchable, on-line database meeting the requirements of Appendix 2.
 - g. Provides free access to the software and customer interface that a registrar would need to register new second-level domain names.
 - h. An adequate number (perhaps two or three) of globally-positioned zone-file servers connected to the Internet for each TLD.

2. Independently-reviewed MANAGEMENT POLICIES, PROCEDURES, AND PERSONNEL including:

- a. Alternate (i.e., non-litigation) dispute resolution providing a timely and inexpensive forum for trademark-related complaints. (These procedures should be consistent with applicable national laws and compatible with any available judicial or administrative remedies.)
- b. A plan to ensure that the registry's obligations to its customers will be fulfilled in the event that the registry goes out of business. This plan must indicate how the registry would ensure that domain name holders will continue to have use of their domain name and that operation of the Internet will not be adversely affected.
- c. Procedures for assuring and maintaining the expertise and experience of technical staff.
- d. Commonly-accepted procedures for information systems security to prevent malicious hackers and others from disrupting operations of the registry.

3. Independently inspected PHYSICAL SITES that feature:

- a. A backup power system including a multi-day power source.
- b. A high level of security due to twenty-four-hour guards and appropriate physical safeguards against intruders.
- c. A remotely-located, fully redundant and staffed twin facility with "hot switchover" capability in the event of a main facility failure caused by either a natural disaster (e.g., earthquake or tornado) or an accidental (fire, burst pipe) or deliberate (arson, bomb) man-made event. (This might be provided at, or jointly supported with, another registry, which would encourage compatibility of hardware and commonality of interfaces.)

Registrar requirements

Registries will set standards for registrars with which they wish to do business. The following are the minimal qualifications that IANA should mandate that each registry impose and test or inspect before allowing a registrar to access its database(s). Any additional requirements imposed by registries on registrars must be approved by IANA and should not affect the stability of the Internet or substantially reduce competition in the registrar business. Registries may refuse to accept registrations from registrars that fail to meet these requirements and may remove domain names from the registries if at a later time the registrar which registered them no longer meets the requirements for registrars.

1. A functioning DATABASE AND COMMUNICATIONS SYSTEM that supports:

- a. Secure access (with encryption and authentication) to the registry.
- b. Robust and scalable operations capable of handling moderate volumes.
- c. Multiple connections to the Internet via at least two Internet Service Providers.
- d. A daily data backup and archival system.
- e. A record management system that maintains copies of all transactions, correspondence, and communications with all registries for at least the length of a registration contract.

2. MANAGEMENT POLICIES, PROCEDURES, AND PERSONNEL including:



NICE KITTY.

**FIERCELY CLEVER,
POWERFUL AND QUICK.
SAY HELLO TO TIGRIS, THE NEW
INTEGRATED ACCESS PLATFORM FROM ACC.**



Want all your access systems to purr? Want a seamless solution for Internet access, enterprise access, and remote dial-in services? Then leap into the future of access technology with Tigris.

Tigris rules the access jungle, providing a single, integrated solution. It reduces network access costs by optimizing bandwidth, integrates modem and ISDN connections, and supports multiple WAN technologies such as Frame Relay, SMDS, ATM, X.25, ISDN, and PPP.

Tigris supports up to 1240 connections, and provides the secure management of dial-in sessions in an open and scalable architecture that seamlessly integrates both circuit and packet technologies.

So don't be trapped by outdated access technology. Let Tigris show you the way in.

For information on the Rivers of ACC: Tigris, Amazon, Mississippi, Nile, Colorado, Danube, Yukon, and the Congo and Shannon families — just call. Access begins with ACC.

COME SEE US AT ISPCON BOOTH # 560

Visit us on the Internet at www.acc.com

ACC

A Newbridge Affiliate 800-444-7854

THE WAY IN™

- a. A plan to ensure that the registrar's obligations to its customers and to the registries will be fulfilled in the event that the registrar goes out of business. This plan must indicate how the registrar would ensure that domain name holders will continue to have use of their domain name and that operation of the Internet will not be adversely affected.
 - b. Commonly-accepted procedures for information systems security to prevent malicious hackers and others from disrupting operations.
3. Independently inspected PHYSICAL SITES that features:
- a. A backup power system.
 - b. A high level of security due to twenty-four-hour guards and appropriate physical safeguards against intruders.
 - c. Remotely-stored backup files to permit recreation of customer records.

Appendix 2

Minimum Dispute Resolution and Other Procedures related to Trademarks

1. Minimum Application Requirements:

- a. Sufficient owner and contact information (e.g., names, mail address for service of process, e-mail address, telephone and fax numbers, etc.) to enable an interested party to contact either the owner/applicant or its designated representative; and a
- b. Certification statement by the applicant that:

- it is entitled to register the domain name for which it is applying and knows of no entity with superior rights in the domain name; and
- it intends to use the domain name.

2. Searchable Database Requirements:

Utilizing a simple, easy-to-use, standardized search interface that features multiple field or string searching and the retrieval of similar names, the following information must be included in all registry databases, and available to anyone with access to the Internet:

- Up-to-date ownership and contact information;
- Up-to-date and historical chain of title information for the domain name;
- A mail address for service of process;
- The date of the domain name registration; and
- The date an objection to registration of the domain name was filed.

3. Updated Ownership, Contact and Use Information

- a. At any time there is a change in ownership, the domain name owner must submit the following information:
 - Up-to-date contact and ownership information and
 - A description of how the owner is using the domain name, or, if the domain name is not in use, a statement to that effect.

4. Alternative Dispute Resolution of Domain Name Conflicts:

1. There must be a readily available and convenient dispute resolution process that requires no involvement by registrars.
2. Registries/Registrars will abide by the decisions resulting from an agreed upon dispute resolution process or by the decision of a court of competent jurisdiction.
3. If an objection to registration is raised within 30 days after registration of the domain name, a brief period of suspension during the pendency of the dispute will be provided by the registries.

ENDNOTES

1. The RFC and comments received are available on the Internet at the following address:
<http://www.ntia.doc.gov>.
2. See generally MDT Corp. v. New York Stock Exchange, 858 F. Supp. 1028 (C.D. Calif. 1994).
3. See Lockheed Martin Corp. v. Network Solutions, Inc., 1997 WL 721899 (C.D. Calif. 11/17/97); Panavision International v. Toeppen, 1996 U.S. Dist. LEXIS 20744, 41 U.S.P.Q.2d 1310 (C.D. Calif. 1996).
4. Management principles for the .us domain space are set forth in Internet RFC 1480,
(<http://www.isi.edu/in-notes/rfc1480.txt>)

ISP's, How Do You ReBoot Remote Equipment?

Now with Sentry, you can reBoot any locked-up internetworking device through a standard dial-up modem, over an ethernet network or via TCP/IP using Telnet. The Sentry family of products provides an easy, practical, and secure solution for power management of remote internetworking equipment. Select the Sentry model best for you.



Sentry Rack



Sentry International

- Quickly respond to remote equipment problems
- Reboot locked-up routers and modem banks
- Shutdown and reboot locked up NT and UNIX servers
- Keep customers on-line and happy
- Meet and exceed service levels

COME SEE US AT ISPCON BOOTH # 518



Another great product from
Server Technology Inc.

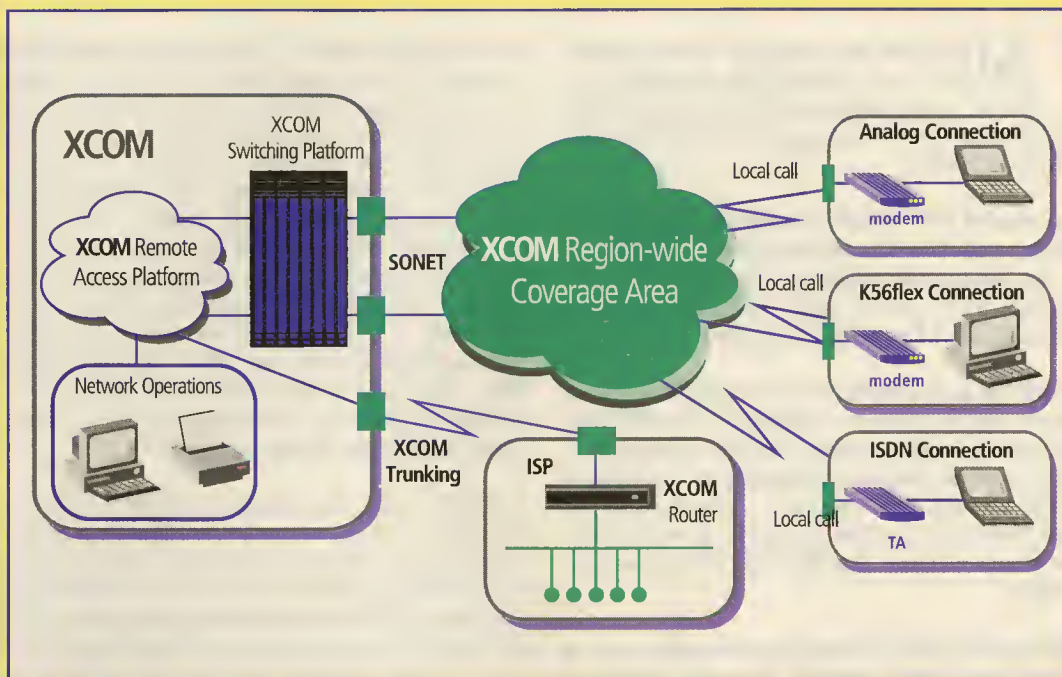
ISP's, Call For Discount!

Contact us at:
 Web: www.servertech.com
 Phone: 1-800-835-1515
 or 1-408-745-0300
 Fax: 1-408-745-0392

© 1997 Server Technology Inc. Sentry is a trademark of Server Technology Inc.

"A Price Break for ISPs"

—tele.com, January 1998



Internet service providers can use XCOM's switching facilities to route data traffic from their subscribers to the ISP's points of presence.

XCOM, "the data phone company™" for ISPs, is changing the dynamics of dial-up internet access.

We are a data-focused CLEC, with an advanced network architecture that offloads data from congested central office switches.

Our virtual network offers ISPs region-wide coverage and the ability to expand a service area to other regions without significant capital investment. In fact, **XCOM** improves your balance sheet by reducing capital equipment expenses.

To see if **XCOM**'s network model makes sense for your business, start with answers to a few simple questions:

- Do you support 56Kbps on all your ports?
- Do you have LATA-wide coverage?
- Are all your ports ISDN capable?
- Can you add ports simply by picking up the phone?
- Can you guarantee no busy signals?

If you answered "No" to any of these, it makes sense to call **XCOM**. We'll tell you what a partnership with **XCOM** can mean to your bottom line.

Visit **XCOM** at www.xcom.net

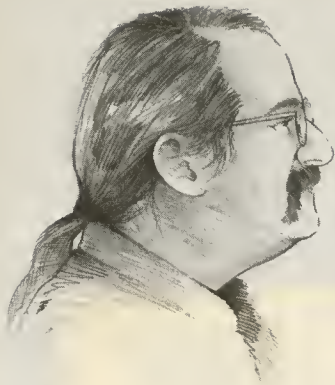
Call us at 617•500•0000



Call **XCOM** today. We'll help grow your business tomorrow.

See us at **ISPCon**, March 16 - 19, in Baltimore. Booth #255





ISP MATING RITUALS by Bill McCarthy

MCI: WHEREFORE ART THOU, WORLDCOM

More folks are lining up to see that the MCI and WorldCom marriage remains unconsummated than Montagues and Capulets at a Romeo and Juliet coming out party in Fair Verona.

San Diego-based ISP Simply Internet, GTE Service Corporation and the Communications Workers of America are among the leaders of the opposition, filing with the FCC as of early February to deny WorldCom and MCI the ability to merge.

Simply Internet is a WorldCom customer for Internet connectivity and local-loop connections. The ISP also has a lawsuit pending against MCI's cellular subsidiary, Nationwide Cellular Service, Inc., because it claims MCI cancelled its contract without notice or cause. But the issues in that litigation have no bearing on its desire to blunt the MCI-WorldCom merger, the ISP says.

Simply Internet says the merger would simply lead to the largest and third largest Internet backbone providers in the United States "creating an excessive degree of market concentration in the national Internet backbone services market which will severely hamper the free and competitive development of the overall Internet services industry."

Also backing the opposition are the United States Internet Providers Association (USIPA), Bell Atlantic, BellSouth, Inner City Press/Community on the Move (a non-profit consumer watchdog organization), the AFL-CIO and several of its locals and affiliates, including the Communications Workers of America.

Simply Internet and the others opposing the deal want the FCC to hold hearings and release all documents pertaining to the merger. "While the ISP market is highly competitive, the Internet backbone market is not," the petition says. MCI, Sprint and WorldCom control 74 percent of the total Internet backbone connections to ISPs, the motion says, citing *Boardwatch Magazine's* statistics. The petition alleges that since the two companies own most of the nationwide fiber optic networks for Internet exchange services, MCI and WorldCom would control enough of the Internet backbone provider market to dictate prices and the allocation of IP addresses — the numbers that every server on the Net needs to be found by user machines.

The opponents say they are further threatened by WorldCom's subsidiary UUNET, which said in May 1997 that it would no longer provide peering arrangements unless ISPs "can route traffic on a bilateral

and equitable basis." The company cancelled peering contracts with competitors who did not comply, and renegotiated new terms such as \$24,000 a month for transit services and slapped five-year non-disclosure agreements on the ISPs, according to the petitions. The FCC petitions allege: "In implementing these new policies, UUNET has shown a clear intent to commandeer the Internet for itself, while extracting premium payments from struggling (backbone) competitors who otherwise would face disconnection from one of the major Internet backbone network routes." The opponents also say that the companies could drive up rates to consumers and ultimately change the structure from unlimited access to usage-based rates, known as "penny per pixel."

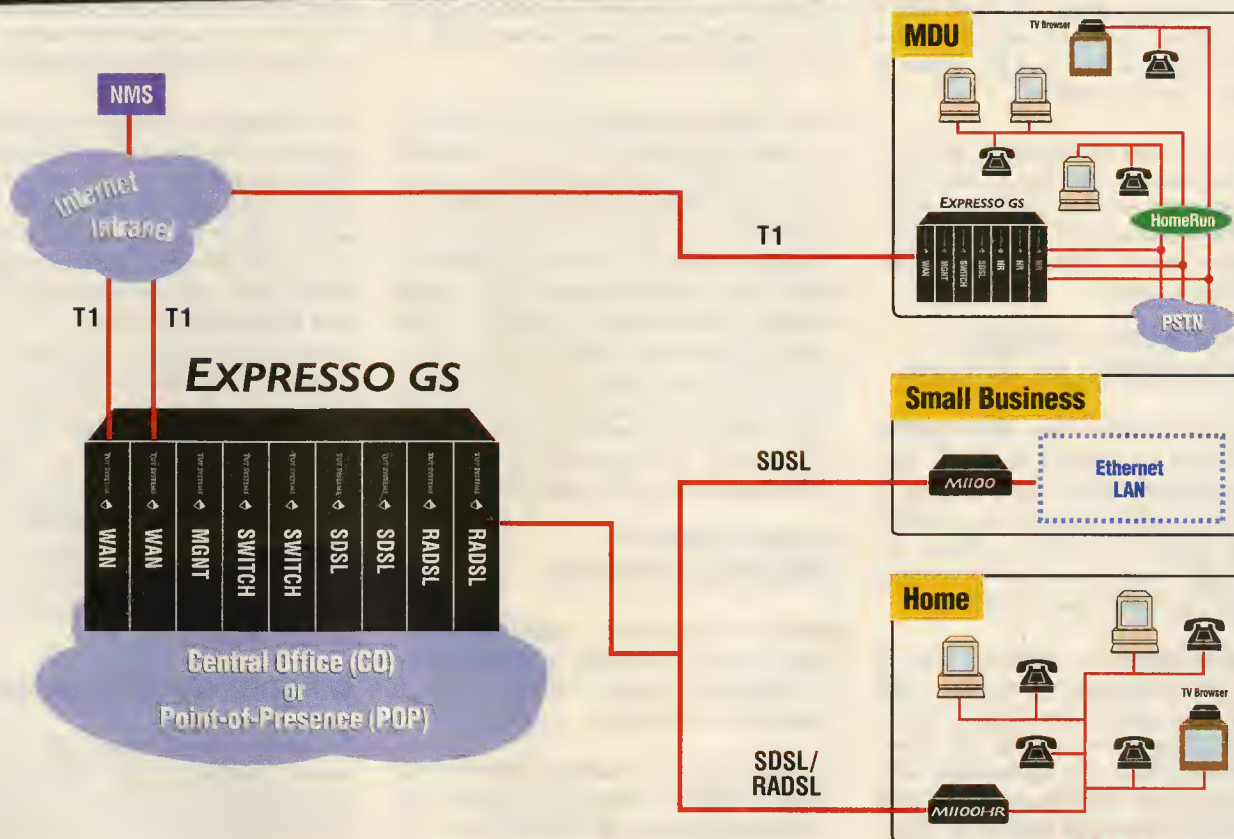
UUNET is also the largest provider of Internet dial-up infrastructure in the United States, providing dial-up points of presence to several of the largest ISPs, the petition says. Because of that, UUNET's decisions on pricing and traffic policies have substantial impact on large ISPs, such as AOL, MindSpring and EarthLink, as well as small carriers, the petitions say.

The merger also faces opposition on the local and state level as well as in federal agencies. The executive board for the Iowa Federation of Labor, AFL-CIO, for example, voted January 30 to join in opposition to the merger. The merger would "cut job growth in the industry by more than 75,000 jobs over the next four years," it said. In contrast, MCI and WorldCom senior executives would gain more than \$320 million in bonuses if the merger were approved, a union statement added. The Iowa local also alleges the deal would have a "severe and negative impact" on Iowa families and small businesses. MCI and WorldCom have an aversion to "providing telecommunications services to the residential market," and that it would be harmful to universal service — the program that guarantees residents affordable local telephone service, especially in rural areas. The Iowa AFL-CIO executive board pledged to bring this issue before all appropriate agencies, including the Iowa Consumer Advocate and the state Public Utility Commission, and the AFL-CIO says other locals and state level bodies will bring similar actions across the nation.

On the less-contentious purchases, WorldCom completed its merger with CompuServe Corporation, swallowing the company as of January 31. In addition, WorldCom acquired ANS Communications from America Online, Inc., and has entered into five-year contracts with AOL under which WorldCom and its subsidiaries will provide network services to AOL. As part of the transaction, AOL received CompuServe's

TUT SYSTEMS

Simply Delivering xDSL...



**Visit Us at
Booth #557**

Espresso GS

**The Easiest Path
to High-Speed
Service Delivery
for Businesses
and Consumers!**

Espresso GS

- **Ready today** with 2.3 Mbps for business and HomeRun for consumer applications.
- **Future-proof** support of emerging G.lite and other line technologies on a 6.8 Gbps platform.
- **Easy-to-install features**, such as SmartWire™, that send data as fast as possible over distances as long as possible.
- **Easy-to-sell features**, such as All-Rate DSL™, that allow customers to start slow and accelerate to higher speeds as their needs expand.
- **Complete, yet flexible** with optional integrated 10/100Base-T switching, routing, and a variety of WAN interfaces.

Express.connect

- **Easy-to-sell** with a cooperative marketing and sales program designed to accelerate service subscriptions and maximize market penetration.

Let Tut Systems take your network – where it need to go!



TUT SYSTEMS

2495 Estand Way | Pleasant Hill, CA 94523 | 800-684-2008 | 510-682-4125 fax | www.tutsys.com

Interactive Services Division and \$175 million in cash. WorldCom is retaining the CompuServe Network Services division. CompuServe stockholders are entitled to 0.40625 of a share of WorldCom common stock for each CompuServe share. The merger between WorldCom and Brooks Fiber Properties, Inc. became effective January 29. Each share of Brooks Fiber common stock allows the holder the right to receive 1.85 shares of WorldCom common stock.

While Romeo and Juliet ended in tragic suicides, whatever happens in the MCI-WorldCom proposal will likely end without sadness. Remember that MCI's former suitor British Telecom took home \$7.4 billion in cash.

AT&T WOOS TCG CERFNET; RBOCS BOUND TO BE JEALOUS

Speaking of variable love, TCG CERFnet may soon be wedded to AT&T. But questions remain about the viability of the deal and what effect, if any, it will have on Internet services offered by TCG, AT&T and their subdivisions, including San Diego-based CERFnet.

AT&T announced in January that it signed an agreement to merge with Teleport Communications Group for an all-stock transaction valued at about \$11.3 billion. Under the agreement, each TCG share would be exchanged for 0.943 of an AT&T share. The boards of AT&T and TCG approved the transaction. The companies expect the merger to be tax free to TCG shareowners and close in mid-to-late 1998. It may take longer. Regional Bell operating companies will likely fight the merger because of the threat to their local calling monopolies.

While AT&T was chiefly interested in TCG's penetration of the local business telephone market, CERFnet's OC-3 backbone and its growth and reputation in the Internet market made it an attractive candidate for purchase, as well. Giants like AT&T need to keep up with the likes of WorldCom and GTE as they purchase multiple backbones. Employees in both companies said they do not expect the sale to mean major changes for CERFnet, at least in the immediate future.

AT&T plans a new unit around TCG focused on the company's local services. TCG also will continue to provide wholesale services. Robert Annunziata, chairman and CEO of TCG, will become an executive vice president of AT&T and lead the new local services unit that will

incorporate AT&T's current local service and access management operations. Like all of AT&T's senior officers, Annunziata, 49, will report to C. Michael Armstrong, chairman and CEO, and to John Zeglis, president. Annunziata will also become a member of the company's Operations Group. He will maintain offices at the company's Basking Ridge, N.J., operational headquarters and at TCG's offices in Dayton, N.J.

Some analysts speculate that the merger could also mean AT&T is interested in the cable television/Internet access area, since TCG's investors include big players in the cable TV business. Cox Communications, Comcast Corporation, and Tele-Communications, Inc., which together hold about 95 percent of the voting power and 66 percent of the equity of TCG, have approved the merger. They signed long-term agreements under which they will continue providing certain construction and maintenance services to TCG after the merger.

GLOBALCENTER EXPLORES FRONTIER

Frontier Corporation announced January 15 that it agreed to acquire national backbone operator GlobalCenter of Sunnyvale, California.

In an all-stock transaction, Frontier will issue 6.4 million shares to acquire all the outstanding shares of GlobalCenter. Up to another 900,000 shares will be available for existing GlobalCenter options and warrants, 65 percent of which are scheduled to vest over the next four years. The transaction is expected to add to earnings beginning in the first half of 1999, according to a press release from Frontier of Rochester, New York.

GlobalCenter is emphasizing its digital distribution for web customers. GlobalCenter's 8,000 business customers include such heavily-trafficked web sites as Netscape, Yahoo!, *USA Today* and Electronic Arts. GlobalCenter currently handles 1.5 billion page views every month, 150 million Internet requests and up to 250,000 software downloads a day. Through GlobalCenter's six domestic and international media distribution centers and national ATM backbone, leased from WorldCom, the company provides direct Internet connections, web hosting and collocation services.

Frontier is the fifth largest long-distance company but also provides integrated communications services, including local, cellular, paging, data,

Internet and enhanced services to more than two million customers. The company was founded in 1899, and reported 1996 annualized revenue of about \$2.5 billion. Frontier plans to finish building 13,000 route miles of high-speed, high-capacity fiber for broadband voice and data applications this year. The network will interconnect 100 major cities across the nation with a self-healing SONET architecture.

In a statement, Douglas T. Hickey, chief executive officer of GlobalCenter, said: "To be successful, you must be facilities-based, not captive to the whim of another provider." Hickey knows much more about the facilities-based mantra than most of the executives from huge ISPs and telcos who have been chanting the incantation lately. He joined GlobalCenter from MFS Communications Company where he was president of MFS Datanet and MFS Internet Services. Hickey will become a senior vice president of Frontier, reporting directly to Frontier President and CEO Joseph P. Clayton. The new company, Frontier GlobalCenter, will remain in the Silicon Valley and it will retain its base of about 240 employees.

WINSTAR, GOODNET ELOPE

Telesoft, which owned backbone provider GoodNet along with its founders and managers, agreed to sell the company to telecom service provider WinStar.

WinStar paid \$3.5 million in cash and \$18.5 million in WinStar common stock in consideration for the acquisition, in addition to assuming about \$500,000 in liabilities.

GoodNet has a 45 Mbps, ATM national backbone with connections in 25 U.S. cities, plus OC-3 links to five backbone cities. It also has 125 dial-up POPs in 93 cities. GoodNet lost about \$1.8 million in operating expenses in the nine months prior to August 31, according to Securities and Exchange Commission documents filed by Telesoft.

In addition to its long-distance and data services, WinStar licenses the 38 GHz spectrum to businesses in 150 cities for voice and data communications. This service is called *Wireless Fiber*. Once the deal is complete, the new backbone service will be called *WinStar GoodNet*.

RCN TO BUY EROL'S, ULTRANET

RCN Corporation, announced on January 21 that it had signed agreements to buy

ISPs Foil Experts' Prediction of DOOM!

MASS INDUSTRY CONSOLIDATIONS THWARTED BY UTILIZING ABOVENet ISPCondo

Read the "Real World" comments from some of our Customers

"Now our customer service department can focus on customer issues, not network issues."

Don Fredrickson, Got.Net

"AboveNet's ISPCondo has allowed Sonic to quickly implement a complete and elegant solution for our infrastructure expansion plans."

Dane Jasper, Sonic

"Since coming to AboveNet, our churn rate has dropped from 25% per month to less than 5%, and our customer base has grown more than 50% in the last three months."

Jay Cambell, Got.Net

"AboveNet - These guys have a clue!"

Dror Matalon, Direct Network Access Inc. (DNAI)

AboveNet realizes that every ISP is different and has unique needs. AboveNet ISPCondo has programs to fit each ISP's individual requirements. Leverage our network for superior scaleable bandwidth from 256Kbps to 100Mbps or take advantage of our telco partnerships to expand your customer access options.

AboveNet's world-class co-location facility boasts the world's largest single-point IP network, with over 1.5 Gbps connectivity to the Net.

Outsource your network infrastructure to AboveNet and watch your bottom line grow.

AboveNet ISPCondo, the Profitable ISP Solution...



AboveNet Communications Inc

50 W. San Fernando, Suite 1010
San Jose, CA 95113
408-367-6696
ispcondo@above.net

the largest Internet service providers in Boston and Washington, DC, UltraNet Communications, Inc. and Erol's Internet, Inc. for a combined \$110.5 million in cash and RCN common stock.

The acquisitions establish RCN as the largest regional ISP in the Northeast, with more than 325,000 Internet subscribers from Boston to Washington. The company also offers local and long-distance telephone service and cable television in these markets over its fiber optic network.

Under the agreements, RCN will purchase Erol's for about \$35 million in cash and \$48.5 million in stock. The RCN common stock to be issued will be valued based on the average trading price prior to the closing, subject to a maximum of \$40 per share and a minimum of \$30 per share. Based in Springfield, Virginia, Erol's currently has more than 293,000 customers in the Northeast, mostly residential. RCN will also purchase UltraNet Communications, Inc. for \$7.8 million in cash and \$19.2 million in stock. Based in Boston, Massachusetts, UltraNet has more than 32,000 residential and business customers and is the Boston area's largest ISP. Erol's and UltraNet have a combined annual revenue of about \$58 million.

The deal has to go through regulatory processes before it can become reality.

RCN Corporation claims to be the nation's first and largest single-source, facilities-based provider of telecommunications services to the residential market. The company is currently providing local phone, long distance, cable television and Internet access in the Boston to Washington, DC, corridor.

RCN hangs both copper and coaxial cables between the nearest telephone pole and a customer's home. The company offers the same TV programs as other cable companies because federal legislation forces show owners to give RCN access at about the same terms offered to the older cable providers.

RCN muscles on to crowded telephone poles by cutting deals with power companies, such as Boston Electric and Potomac Electric in DC. RCN strings fiber optic cables where electric wires are usually found on the poles or in the underground electric conduits. That strategy, of course, has met with howls of protest from the established phone and

cable companies, who complain to utility commissions. But many industry experts say that court cases would likely uphold RCN's current practices and allow the company access to the utility poles anyway.

RCN's lines feed into a residence at 51 Mbps, 1,000 times as fast as a conventional phone modem and five times as fast as a cable modem. The company also claims better service. With the order of a second phone line, RCN's installers will call the customer at any location half an hour prior to arriving for the installation. Most telcos require customers to wait at home for four hours.

COMPAQ BUYS DEC

In a \$9.6 billion deal, Compaq Computer Corporation and Digital Equipment Corporation announced on January 26 that they reached a merger agreement.

Compaq CEO Eckhard Pfeiffer said that Compaq is committed to supporting Digital's Alpha architecture. That may change, however, as Intel prepares for the release of its competing IA-64 Merced architecture in the next couple of years. Alpha, Digital's high-end 64-bit processor used in its servers and workstations, has faced an uncertain future since last October, when Digital sold its chip-producing plants to Intel as part of the settlement of its patent infringement lawsuit against Intel. Under the terms of the deal, Intel said it could continue making the Alpha chips for an undisclosed amount of time. Many analysts said that settlement meant the end for Alpha, and it may. As part of the deal, Digital agreed to begin making servers based on Intel's forthcoming Merced technology, and analysts say that it is only a matter of time before Digital folds its products into a platform based on Merced — the first generation of Intel's 64-bit chip technology. But for now everyone is upbeat about Alpha, as well as combining Compaq and DEC products with Digital's 1,600 certified Windows NT technicians.

In Digital's recently reported second quarter, profits doubled and the company reported tremendous growth in its target markets. The transaction will be the largest acquisition in the history of the computer industry, valued at \$9.6 billion based on the January 23 closing price of Compaq common stock. Under the terms of the transaction, shareholders of Digital will receive \$30 in cash and about 0.945 shares of Compaq common stock for each

share of Digital stock. Compaq will issue about 150 million shares of Compaq common stock and \$4.8 billion of cash. Digital will become a wholly owned subsidiary of Compaq.

Earl Mason, chief financial officer of Compaq, said the combination should add revenue within a year.

Compaq Computer Corporation is the fifth largest computer company in the world and the largest global supplier of personal computers. Compaq has shipped over a million servers. In 1997, the company reported worldwide sales of \$24.6 billion. Digital Equipment Corporation is a supplier of high-performance computers and software.

ICG AND NETCOM CONSUMMATE MARRIAGE

Englewood, Colorado-based ICG Communications, Inc., one of the nation's largest competitive local exchange carriers, and NETCOM On-Line Communication Services, Inc., an Internet services provider, announced January 22 the completion of their merger. Both ICG and NETCOM stockholders approved the combination. Under the terms of the merger, NETCOM stockholders will receive a fixed exchange ratio of 0.8628 shares of ICG common stock for each NETCOM share held.

NETCOM is one of the largest ISPs in the country and as of December 31 provided service to about 540,000 customers and more than 12,000 businesses. NETCOM's preliminary unaudited revenue and EBITDA for the fourth quarter ended December 31, 1997, were about \$40 million and \$500,000 respectively.

ICG has extensive switched fiber-optic networks and offers local, long-distance and enhanced telephony and data services in California, Colorado, the Ohio Valley and parts of the Southeastern United States. ICG is a national competitive local exchange carrier (CLEC) publicly traded on the Nasdaq National Exchange under the symbol ICGX. Following completion of the merger on January 21, 1998, NETCOM shares will no longer be publicly traded. Further information is available on ICG's web site located at www.icgcomm.com.

CONCENTRIC BUYS HOSTING COMPANY

Concentric Network Corp. agreed February 2 to acquire InterNex Information

Good News.

WINSTAR TO ACQUIRE GOODNET, A LEADING NATIONAL INTERNET SERVICE PROVIDER

Acquisition Strongly Positions WinStar
In Expanding Data Communications Market

NEW YORK - DECEMBER 11, 1997, WINSTAR COMMUNICATIONS, INC. (NASDAQ-WCII) announced today it has signed a definitive agreement to acquire GoodNet.

GoodNet, which will be known as WinStar GoodNet, will become part of a new organization that will spearhead WinStar's expansion into the burgeoning data communications business.

David Jemmett, Chief Executive Officer of GoodNet, said today: "WinStar's unique ability to bring wireless broadband connectivity to office buildings throughout the U.S. makes it an ideal facilitator and partner for GoodNet. Our drive to bring Internet access to businesses everywhere meshes perfectly with WinStar's vision of becoming an integrated provider of voice, data and video telecommunications services on a national level."

Wireless broadband connectivity. Today.



GoodNet

1-888-GOODNET Ext 4

WWW.GOOD.NET

1-602-303-9500 Ext 4

WinStar is a registered trademark of WinStar Communications, Inc.

Services, Inc., a provider of web hosting and dedicated access services based in Santa Clara, California, for \$15.5 million in cash. Customary closing conditions and approval by InterNex's shareholders is pending.

Concentric Network expects to combine InterNex's public peering arrangements with its dedicated private peering and transit connections to high-volume network providers. Both networks operate on compatible ATM-based backbones. Concentric will pick up InterNex data centers in Santa Clara, San Francisco, Los Angeles, Chicago and Washington, D.C., as well as hosting facilities in Stockholm, Tokyo and Hong Kong. Concentric currently has data centers in Cupertino and Bay City, Michigan. Concentric will also gain access to InterNex's SONET ring infrastructure in Northern California.

ADIOS, ISTAR BOARD OF DIRECTORS

iSTAR Internet Inc. and PSINet Inc. said January 30 that all of the former directors of iSTAR resigned in accordance with the terms of an agreement for PSINet to buy iSTAR. Nadir Desai, David Kunkel, Wesley Roitman and Michael Beirsto have been appointed to the board of directors of iSTAR to fill the vacancies. Desai will serve as president and chief executive officer and Roitman as chief financial officer, secretary and treasurer. Desai and Roitman are chief executives of PSINet Limited of Toronto. Kunkel is a senior executive and board member of PSINet Inc., headquartered in Virginia. Beirsto is a partner at the law firm of Fraser & Beatty.

SAVVIS BUYS NEW PRIVATE NAP IN SEATTLE AND NEW POP IN PORTLAND

SAVVIS Communications Corporation of St. Louis announced January 28 that it bought Interconnected Associates (IXA) of Seattle in a deal with secret terms. IXA offers Internet access services to businesses and web-based companies in the Pacific Northwest. As part of the acquisition, SAVVIS will extend its national network to Seattle and Portland, Oregon.

Founded in 1994, IXA offers Internet access at speeds from fractional T-1 (128 Kbps) to T-3 (45 Mbps). IXA's customer list of about 200, includes Amazon.com, Cybermeals.com and Infospace.com.

The acquisition of IXA, SAVVIS says, is the first of a series that it expects as it becomes more aggressive in pursuit of expansion in 1998.

SAVVIS' network model uses a unique system of network access, private network access points to bypass the MAEs and public NAPs. SAVVIS customers include CDnow, PointCast Inc., Apple Computer and Omron Electronics.

With the addition of Seattle and Portland, the SAVVIS network will now have eight private NAPs and points of presence (POPs) in 11 cities nationwide. "We have quadrupled our sales force in the past six months," said CEO Sam Sanderson, "and we will double it again in 1998. Seattle and Portland mark the beginning of this growth."

IXA cofounders Jeff Sterling and Mike Brownstein will join SAVVIS. Sterling will be a vice president and regional sales manager for the Pacific Northwest; Brownstein will be a vice president and operations manager for the Pacific Northwest. The networks and operating systems should be combined in about 90 days.

JAVANET SWARMS CONNECTICUT IN ONE MOVE

Here's proof that these mating rituals are in force from the largest to the smallest ISPs. JavaNet a full service ISP expanded its network throughout the state of Connecticut in one move — by acquiring North American Internet, Inc. of Newington, Connecticut. The company says its first acquisition will nearly double the company's customer base to 15,000 dial-up users and over 150 corporate buyers. Terms of the cash and stock deal are secret.

Founded in 1995 North American Internet claims to be the first company in Connecticut to offer statewide local dial-up access to the Internet. Founded in 1995, JavaNet is a regional ISP in Massachusetts, Maine and now Connecticut. It also operates JavaNet Cafes in Northampton, Massachusetts, and Portland, Maine.

LYCOS BUYS 'HIP' ONLINE SERVICE

Lycos agreed February 3 to buy Tripod for \$58 million in stock, adding an online community to its Internet search engine and demographic firepower to its ad staff's arsenal.

Executives believe the combination with Tripod will significantly boost Lycos' web traffic, especially from the twenty-something age group, and in turn boost advertising revenue. Tripod generates more than 100 million page views per month and includes more than 1.5 million member home pages, according to Lycos.

Lycos faces stiff competition from Internet search engines such as Infoseek, HotBot, Excite, and Yahoo!, as well as America Online and Microsoft. Earlier in January, Yahoo! purchased \$5 million in equity of GeoCities, an online community. The investment, which will be paid for with newly-issued Yahoo! common stock, represents a minority interest in GeoCities. Tripod also recently raised some hackles by joining companies such as GeoCities in using pop-up ads on its site.

Tripod of Williamstown, Massachusetts, becomes a wholly owned subsidiary of Lycos with Bo Peabody remaining as CEO of Tripod. Dick Sabot, chairman of Tripod, joins the Lycos board of directors. Sabot co-founded Tripod with Peabody, and has been chairman since Tripod's inception in 1992. In addition to his role at Tripod, Sabot is an economic advisor to both the InterAmerican Development Bank and the World Bank, and is the John J. Gibson Professor of Economics at Williams College.

Tripod "is the hip, homegrown web community for 18-to 34-year-old individuals who embrace the innovative and pioneering spirit of the Web," the company says. Its web site provides members with a variety of resources, including personal home page publishing tools, and other information through content areas organized by topics of interest.

One question remains: Are you really hip if you say you are? ♦

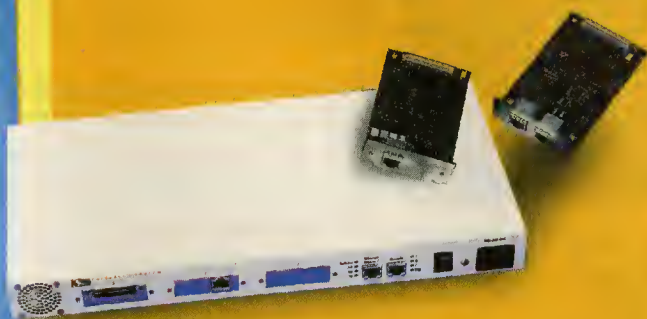
Stressed
about your
next
router

When you thought everything was finally working, they decided to add another network to the mix. Is the router going to keep up with the additional load?

The **Cyclades®-PR3000**, a midrange router, has the spare power to handle your current and future needs. Interfaces can be changed as fast as the needs of your users.

The best thing about it is that it doesn't cost more than what is currently in the market.

Now you know what to do.



The Cyclades-PR3000 on expandable, midrange router.

WWW.CYCLADES.COM

LAN . . . WAN . . . OH MAN!



WHAT Do You Do?

Cyclades-PR3000

The **Cydades-PR3000** uses the new **Motorola MPC860** processor to deliver unrivaled power performance and offer flexibility that let you change or add new interfaces as they are needed. It comes with **8 MB of DRAM** (expandable to **64 MB**) and **2/4 MB of Flash Memory**.

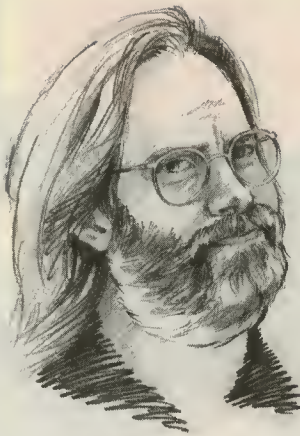
The **Cyclades-PR3000** has one LAN Interface and 3 Expansion Slots where you can install any combination of:

- Serial WAN Interface (V.35, RS-232 and X.21)
- Built-in DSU/CSU (T1, E1)
- ISDN-BRI
- Terminal Server Interface
(up to 64 RS-232 ports for Remote Access)

It routes TCP/IP, IPX and SNA (Q2 98) and also supports RIP, OSPF, NAT, RADIUS, TACACS, PPP, Frame Relay, and X.25.



Fremont, CA 94538
Tel: 510-770-9727
1-800-882-9252
FAX: 510-770-0355
sales@cyclades.com



Java Jitters

by Doug Shaker

WORKING ON SOME CODE AGAIN

Well, this month's column was an exercise in humility for me. I had a neat idea for a little application that I could code up in a few hours that would illustrate some neat tricks in Java. Five days later, I still haven't gotten it to work and I am not sure how to tell what the problem is. Sheesh. But let's start at the beginning.

A couple of issues ago, I asked for your opinions on whether I should work on a neural net stock forecasting program. I had stopped working on it last summer for a couple of reasons. First, I had started to get confused as to how it should be designed. I got lost in a maze of twisty little methods, all alike, and cleaning up the design in public didn't appeal to me much. More importantly, a neural net stock forecasting program needs stock price histories, not just the latest price, and I couldn't find a good source for stock price histories. Maybe the neural net stuff wasn't possible with the information sources I had. Finally, I thought the code-based columns were getting boring.

Since then I have been writing about events in the Java world and, when necessary, lambasting any entity in the Java world that seemed to deserve it. Most people seemed OK with that (except when I said nice things about Apple) but I did get a few e-mails saying "Aren't you ever going to finish your stock program?" So I thought I should ask what you thought. And I did ask.

Well, I am sure all the responses aren't in, but so far the trend is "Yes, we want code, but we also want you to comment, joke, predict, and make a fool of yourself as well. Don't make code all you do." Fine with me. However, we have a more mixed reaction as to the type of code I should be doing. About half the people responding want me to continue with the stock analysis program and the other half would prefer that I do something that might be more immediately useful, where useful is defined as something that people could use in a web page. There also seemed to be a sentiment that I keep things simple.

This is fine with me, as it means that I can shoot my smart mouth off when I want to and I can hack

when I want to. And I can work on small self-contained programs and on the larger stock analysis program as well. So code is back, but not full time. Some additional good news is that my current employer, Expert Support Inc., seems to think my writing this column is a good idea, and they have agreed to let me post the code from the column on their web site. Go to www.xs.com/javacolumn and look around. You should be able to find this column's code pretty easily.

Not that the exact code in this article is likely to do you much good. I started out wanting to answer a question that I see asked reasonably often on Java mailing lists: "If I dynamically generate HTML, how can I get the client browser to display it?" The answer to that question is both easier and harder than it looks. The easy answer is

```
getAppletContext().showDocument( URL)
```

This asks the applet's browser to show the URL that you have listed.

However, the hard part of that question is in the assumption "If I dynamically generate HTML..."

Dynamically generating HTML is easy if you are on the server running an application. If you are running an applet and you want to make new files back on the server, it isn't so easy. There are a host of security blocks in place and, so far, I haven't found a way around them.

But let's look at what I did get done and see if we can learn anything from it. The intent is that we ask the user to do something simple—pick a color name—then we build

and display a web page based on that information. Just to be obtuse, the web page that we build is in color, but it never uses the color which was named, except as a source for text. That is, if the user picks the color "red," the web page will have a background color of yellow and will show the word "Red" in large violet letters.

I wrote this applet in Java 1.0 though I much prefer Java 1.1. I had to use 1.0 because that's where the browsers are. I wish I knew why it is taking them so long to move to the 1.1 machine and class library, but I don't. If you want to have applets that people can use, you have to stick with Java 1.0. As you look at the code, though, you will notice

...It means that
I can shoot my
smart mouth off
when I want to and
I can hack when
I want to.

Doug Shaker works at Expert Support Inc., a Silicon Valley company that writes and produces both technical documentation and training materials (www.xs.com).

Doug has one wife, two children, three pets and four computers. This numeric progression pleases him, though he cannot exactly say why. Doug, in a fit of nerdy machismo, has acquired his own personal Internet domain. He can be reached via e-mail at doug@the-shakers.org.

Maximum Availability ... Guaranteed!

with APC Protection for your Internetworking Equipment



As an Internet Service Provider, you know that your customers' satisfaction depends on network availability. Your network carries the life-blood of the information age to thousands of companies. Every router, switch and hub you install pumps that same life-blood to your customers, and every piece of equipment must work 24 hours a day, seven days a week.

Today's internetworking equipment is fault-tolerant, redundant, and manageable. Still, even redundant equipment needs clean, reliable power to function, and the reality is that your chances of winning the lottery are better than your chances of avoiding bad power. That's why you need APC's award-winning line of uninterruptible power supplies and power management software to protect your valuable equipment from power-related damage and ensure network availability.

Bad power causes nearly half of all data loss and downtime. With power problems striking your network 120 times per month, and utility power failing (on average) every 600 hours, can you afford *not* to protect yourself with APC?

APC Smart-UPS® Rack-mount and APC's PowerNet SNMP remote management software let you diagnose and correct problems before they cause costly downtime, data loss, and hardware damage. When the power goes out, an APC UPS keeps your equipment up and running. Plus, any time power or environmental conditions endanger your equipment or uptime, PowerNet™ SNMP will send you an alarm or even page you. APC accessories like CallUPS® II and Masterswitch™, let you signal a remote site to reboot a locked router with one click!

Backed by a \$25,000 Lifetime Equipment Protection guarantee, Smart-UPS Rack-mount brings the reliability of APC to the world of network computing. That's why

Did You Know?

Some of the biggest names in computing today say "ProtectME! with APC" and enjoy partnerships with APC's award winning marketing team. Could your company be next? Ask us when you attend our Seminar at ISPCON '98.



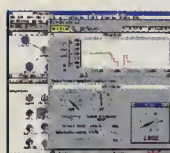
APC protects more networks than all other brands combined.

Instead of increasing your risk by waiting, join over 8,000,000 satisfied computer users worldwide who say "ProtectME! with APC."



APC's oword-winning Smart-UPS units ore available in convenient rack-mount models. The Smart-UPS XL series is recommended for long runtime applications. For maximum protection, ask about our new NetShelter™ premium rock enclosures for all server and internetworking equipment.

APC's PowerNet™ SNMP power monagement software provides comprehensive power-related information to help you minimize downtime and data-loss.



Visit us at ISPCON!

Get a **FREE** SurgeArrest for your notebook computer!

APC is offering a free seminar on Internetworking Power Management at ISPCON. You're invited to attend and learn from our industry experts. An added bonus: bring this coupon to our ISPCON booth (#718) and seminar and get a free PNote1 to protect your PC notebook power and data lines. For more information about our seminar at ISPCON, just visit us on the web at:

promo.apcc.com

KEY CODE A995Z



(888) 289-APCC x7221 • FAX: (401) 788-2797

APC has won more awards for reliability than all other UPS vendors combined.





V.PCM describes how to upload the DILD, what to respond with, and how to communicate the constellation. The magic lies in the client modem calculating what constellation to use for any given set of digital network conditions. This is NOT specified at all in V.90 and will vary entirely between US Robotics, Rockwell Semiconductor Systems, or Lucent Technologies.

The result is that we will have interoperable modems compliant with the V.90 specification and able to talk to each other. But it appears that large disparities in achievable connection speeds will depend on which client modem you are using, and which server modem you connect to. Our testing would indicate these disparities may be enormous - far beyond anything we've seen with previous modem standards. In the previous

round of V.34, the Rockwell chipset was ubiquitous and modem performance was fairly level across the universe of available modems. V.34 was basically V.34. In the coming world of V.90, we would expect to see an almost implausible range of operating performance from modems all purporting to be V.90 compatible. We'll have a standard, but it won't be very standard with regard to performance.

CONCLUSION

We did not test any client modem based on a Lucent chipset. Compaq Computer is actually making such a modem. We'll try to get one and add it to the stable of dialing for data modems on the serial killer project.

The results of the call completion studies will be published in the Winter '98 Directory of Internet Service Providers with call completion rates and average connect speeds for each of 89 national dial-up providers. I can tell you now that IBM looks very good. MCI is pretty good as well. But AOL is not alone at the bottom of the pile, there are some significant smaller ISPs that just can't seem to answer the phone very well.

As to the modems, 3COM/US Robotics x2 modem is very clearly the winner of the 56K battle at this point, and we would look for a continued dominance in actual performance on release of the new V.90 modems. Indeed, rumor has it 3COM was about to release some strongly improved code and decided to hold it for the V.90 release. So we think 56 Kbps modems will be getting better. And we now have a standard - V.90. But the battle is not precisely over. There will likely be ongoing performance differences in this round that the speed you encounter online very much a function of the modem you select. We have enjoyed a period for the past few years where almost any modem at any price would more or less work and deliver the "standard" V.34 speeds. This will simply not be the case with V.90 modems. They may interoperate, at some speed between 2,400 bps and 52 Kbps, but you will most likely get the best performance using a modem and technology that matches the one supported by your ISP. And at least initially, significantly better performance will be available from the 3COM/US Robotics V.90 products.

All noises to dismiss dial-up modems over analog telephone lines are very interesting. Upping the bandwidth to the home is becoming the technical issue of the decade. But for the near future - two to three years at least - ordinary analog telephone lines and what we think of as modems are going to remain more center stage than many would have you believe. We do expect a significant round of inverse multiplexing, where TWO or even more ordinary analog lines are combined to provide higher bandwidths.

In any event, performance improvements are incremental and ongoing. Insist on a software upgradeable modem. And keep up with the upgrades. It would appear the DSP/memory model has ousted the monolithic chipset model, even at Rockwell Semiconductor Systems. So hopefully you will find it difficult to locate a non-upgradeable modem.

It would be much more comfortable for us editorially if all these modems were created more or less equal. From the test data we have available, unfortunately they are not. We do sincerely apologize for bringing this information to light in such tardy fashion given the implications for so many end users and Internet service providers. ♦

Web Emporium Shopping Mall

Web Emporium is a full featured online mall designed expressly for ISPs and web hosting companies. The mall allows you to provide online storefronts to your customers without complicated installation and administration procedures.

FEATURES

- Remote Store Administration** - Store operators manage their stores using their web browser. This simple web interface reduces or eliminates tech support calls.
- Secure** - Supports SSL security
- Online Credit Card Processing** - Optionally process credit cards online with support for multiple merchant accounts.
- E-mail Confirmation of Orders** - E-mail confirmations sent to local or remote addresses for quick fulfillment.
- Sell Products, Services, and Software** - Software purchases can be e-mailed directly to the customer after credit card approval, automatically!
- Multiple Machine and Multiple Store Support** - Designed for traffic directed server farms.
- CGI or ISAPI Support** - Supports all Windows NT/95 CGI capable web servers, including ISAPI support for IIS.
- No Limits** - The number of stores, products, and transactions is limited only by your hardware. (Gold Version)

Sales: 888.890.1773
www.webxyz.com
websoft@webxyz.com
 We Accept Most Major Credit Cards

ISP E-COMMERCE

Online Shopping Designed Expressly For ISPs

STARTING AT: \$495

Websoft Inc.
 1345 E. Main St
 Suite 111
 Mesa, AZ 85203
Voice:
 602.890.1773
Fax:
 602.890.0837

THERE ARE ENOUGH COMPLEXITIES IN LIFE. CONNECTING TO THE INTERNET SHOULDN'T BE ONE OF THEM.

Creating an Internet presence can be a frustrating experience, even for the expert. Beyond the web server there are routers to make the connections, FTP to move the files, and e-mail servers to give your mail a home. And don't forget the Domain Name Server that's required so the world can know your name. Even after you gather all the pieces, you still have to integrate them. And the costs, in time and money, can be staggering. But now there is an easier way.

THE INTERNET PRESENCE IN A BOX

The Internet Protocol Adapter (IPAD) is the only product that fully integrates a router, terminal server, and core Internet services (e-mail, DNS, unlimited WWW and FTP servers) into a single device. With all the necessary internal and external connections, Domain Name Service, and other required functions, the IPAD includes everything you need to easily establish a complete Internet presence. In fact, it's so complete, you can add remote access by simply plugging in modems and dialing in with any Internet compatible computer.

BUILT WITH PERFORMANCE AND DURABILITY IN MIND

The IPAD's capability is housed in a rack-mount chassis of battle-ready construction. Its custom software, optimized for the Pentium processor, yields an unprecedented combination of performance and durability that you can never get from a general purpose operating system. The IPAD may be easy to use, but it's no toy.



	IPAD	Windows NT
Computer Hardware for Server CPU	Comparable performance	166 Mhz Pentium, 2 GIG 5C51 Oisk, Ethernet, Caching Controller
	\$7465	\$3500
Router Software	Included	\$1800
Configuration Time	Pre-configured	1-3 hrs
Configuration Cost	—	\$70 Avg
Sub Total	—	\$1870
System Software O/S	Included	\$895
Configuration Time	Pre-configured	5-30 hrs
Configuration Cost	—	\$615 Avg
Sub Total	—	\$1510
Web Server	Included	Included
Configuration Time	Pre-configured	3-25 hrs
Configuration Cost	—	\$490 Avg
Sub Total	—	\$490
FTP Server	Included	Included
Configuration Time	Pre-configured	1-2 hrs
Configuration Cost	—	\$50 Avg
Sub Total	—	\$50
ONS Server	Included	\$495
Configuration Time	Pre-configured	5-80 hrs
Configuration Cost	—	\$1600 Avg
Sub Total	—	\$2095
E-Mail Server	Included	\$580
Configuration Time	Pre-configured	10-100 hrs
Configuration Cost	—	\$1900 Avg
Sub Total	—	\$2480
Support Costs Per Year	\$795	\$2100
	Includes Hardware and Software Protection	No Hardware or Software Protection
Number of Vendors	1	5
Total Cost	\$8260	\$13,600
Time from receipt to fully operational site	2 Days	120 Days

PLUG 'N PLAY AND WALK AWAY

Many products claim to be easy to use, but the proof is in the time you spend getting it up and running. With other products you have to *learn everything* before you can *do anything* and with the Internet there's a lot to learn. Only the IPAD allows you to get started immediately, and learn as you go. Information Week said of the IPAD "*from box to working system in two hours even with mistakes.*"

And this ease of use doesn't stop there. With an IPAD even those without formal Internet training can confidently grow and maintain their own network.

GO WITH A WINNER!

InfoWorld Magazine said "*The IPAD represents an elegant solution when you need to easily build an Internet or intranet presence. Considering the time it saves you, the price represents a good value.*" In 1995 John C. Dvorak gave the IPAD his PC Telecommunications Excellence Award because he recognized the IPAD advantage.

DON'T WASTE ANY MORE OF YOUR TIME!

You want your Internet Presence up and running quickly without a long learning curve or sacrificing flexibility and power. Now you can have it! The IPAD is the *only* TCP/IP appliance that lets you *start immediately* and grow your site smoothly without forcing you to become an Internet expert (or hire one).

TAKE CONTROL!

Call 303-699-6565 today and join those who have learned the secret to controlling their network rather than having their network control them.

If it's *Easy*, it's **eSoft**

eSoft, Incorporated • 15200 E. Girard Avenue, Suite 3000 • Aurora, CO 80014 • 303-699-6565 • sales@esoft.com • <http://www.esoft.com>

©1997 eSoft, Incorporated. "eSoft," the eSoft logo, and "IPAD" are trademarks of eSoft, Incorporated. All other trademarks are the property of their respective owners.

GetColorName.java

GetColorName.java - an applet that gets a color name from the user, then constructs a web page using that information and asks the user's browser to display it.

The code here is implemented for Java 1.0, since that is what most browsers are using. I have also tried, simultaneously, to show you what would work under Java 1.1.

GetColorName.java

```
import java.awt.*;
import java.applet.*;
import java.awt.event.*;
import java.io.*;
import java.net.*;

public class GetColorName
    extends java.applet.Applet

    /*Under Java 1.1, we would need to add

        implements ActionListener

    //right here, so that the applet would be
    //able to receive the button press
    //information.*/

{
    //Finish the class declaration, start the
    //class definition

        Button DoSomethingButton;
        Choice ColorChooser;

    //Some RGB values for colors that will
    //want later

        String Black = "000000";
        String White = "FFFFFF";
        String Blue = "0000FF";
        String Yellow= "FFFF00";
        String Red = "FF0000";
        String Green = "00FF00";
        String Orange= "FF6600";
        String Violet= "9900CC";

    //The init method is called by the
    //browser when the applet is started.

        public void init(){

    //We set up the input window here

    //First we choose a layout manager.

        //A layout manager tells the system
        //where to place the components we add.
        //There are several layout managers
        //supplied with Java. I chose the
        //GridBagLayout because it lets you
        //specify, more or less, the position of
        //the widgets, both horizontally and
        //vertically.

        GridBagLayout MyLayout = new
        GridBagLayout();
        setLayout(MyLayout);

        //You specify the positioning using a
        //strange beastly called a Grid
        //BagConstraints.

        GridBagConstraints gbconstr = new
        GridBagConstraints();

        //I start the applet with a label to
        //let the user know what they are supposed to
        //do. Being the clever gent that I am, I
        //create a label with the witty words: "Pick
        // a color!"

        Label PickLabel = new Label("Pick a
        Color!");

        //I tell the label to use a 36 point font
        //when it displays.

        PickLabel.setFont(newFont("BigSans",
        Font.PLAIN,36));

        // Now I set up the GridBagConstraints.
        //The label will start in the upper left
        //or (0,0).

        gbconstr.gridx=0; gbconstr.gridy=0;

        //It will be eight columns wide and two
        //rows high.

        gbconstr.gridwidth=8;
        gbconstr.gridheight=2;

        //I don't want the label to get bigger if
        //the window expands.

        gbconstr.fill=gbconstr.NONE;

        //I want the text centered in the space.

        gbconstr.anchor=gbconstr.CENTER;
```

it's happening



The Convergence

Visit our National OC48 Network at:

www.dbn-corp.net

Digital Broadcast Network, Corporation
St. Louis, Missouri
(314)-588-9400

```
//I want 10 pixels of padding above and
//below the text.

    gbconstr.ipady=10;

//Then, we tell the layout manager about the
//constraints for this component

    MyLayout.setConstraints(PickLabel
    ,gbconstr);

//Finally, we add the label to the applet
//space in the browser window.

    add(PickLabel);

//Under Java 1.1, we could substitute a
//single call to add (Component,GridBag
//Constraints)
// for this dual call to
//setConstraints(ComponentGridBagConstraints)
//add(Component)
//
//Then add the menu for the color choices.
//The menu is called ColorChooser. The
//declaration for ColorChooser
//was made up in the beginning of the class
//definition. That was so that the
//ColorChooser would be visible outside the
//init method.
//
//Here we initialize CholorChooser.

    ColorChooser = new Choice();

//Then we add a menu item for each
//of the colors.

    ColorChooser.addItem("Red");
    ColorChooser.addItem("Orange");
    ColorChooser.addItem("Yellow");
    ColorChooser.addItem("Green");
    ColorChooser.addItem("Blue");
    ColorChooser.addItem("Violet");

//We tell ColorChooser to use a fairly
//large font.

    ColorChooser.setFont(new Font
    ("MediumSans",Font.PLAIN,18))

//It should be placed in the third row
//and the third column of the layout.

    gbconstr.gridx=3;

gbconstr.gridy=3;

//It should be four columns wide
//and one high.

    gbconstr.gridwidth=4;gbconstr
    .gridheight=1;

//Add some space to the left and above
//the menu.
```

```
    gbconstr.insets.left=40;
    gbconstr.insets.top=20;
//Tell the layout manager about
//your requests.

    MyLayout.setConstraints(ColorChooser
    ,gbconstr);

//And add the menu to the applet.

    add(ColorChooser);

//Finally, add a button to do some
//thing when the color is chosen.
//This button was also declared at
//the top of the class definition.

    DoSomethingButton = new Button
    ("I Picked one!");

//Start the button in the fourth row
//and the fourth column.

    gbconstr.gridx=4;
    gbconstr.gridy=4;

//Make the button two columns wide
//and one row high.

    gbconstr.gridwidth=2;
    gbconstr.gridheight=1;

//Tell the layout manager about
//your requests.

    MyLayout.setConstraints(DoSomething
    Button, gbconstr);

//Add the button.

    add(DoSomethingButton);

/** Under Java 1.1, we would now have to
tell the system to let us know about Button
events. This would let us know when the
user was through with the applet.
We would do this with

    DoSomethingButton.addAction
    Listener(this);

We would also have to implement an action-
Performed method to handle the events.
However, under Java 1.0, there isn't any way
to say what we are interested in. We just
have to receive all of the events and filter
them for the ones we want. The events are
passed to an action method in the applet.
The programmer filters for the events he or
she is interested in, then returns a boolean.
If the action method returns true, we are
claiming to have dealt with the action. If
it returns false, then we are not claiming to
have dealt with it and default event handlers
will take over.
**/
}
```

extinguish your bandwidth problems

350

**MIRRORS
WORLDWIDE**

See the savings!



BECOME A TUCOWS MIRROR FREE!

TUCOWS



The Ultimate Collection Of Winsock Software.

If your ISP is one of the 350 loyal TUCOWS affiliates, you don't need us to tell you that it's the perfect way for your company to save thousands of dollars each month. But if your ISP is not an affiliate of TUCOWS, you must be wondering WHY? The TUCOWS affiliate program is excellent exposure for your Internet Service Offerings. By becoming a TUCOWS affiliate, you gain ...

1. Excellent exposure for your Internet Service Offerings, driving traffic to your site. This also gives you the opportunity to earn advertising revenues.

2. Conservation of Internet bandwidth, resulting in possible savings of thousands of dollars per month. Traffic from your users remains local to your network, thereby avoiding packet and megabyte transfer costs.

3. Participation in TUCOWS joint promotions, such as the TUCOWS ISP program. The TUCOWS ISP program allows you to distribute the TUCOWS Top 100 CD, including your ISP installation software. Many ISPs have found that the Top 100 CD is a great way to attract and retain customers. We can also create a custom install kit for you.

4. An excellent value add, you can provide all the best software to your customers with the fastest downloads possible!

5. A worry-free archive. Another way TUCOWS stands above the rest is that we have official distribution authorization for each and every application on TUCOWS for the WWW and on our CD-ROM products. There is no need to worry about any illegal software being distributed on your servers. Another benefit to your users is that all software is scanned for viruses, unlike most public ftp sites.

COME SEE US AT ISPCON BOOTH # 125

www.tucows.com

We care so much about your bandwidth and saving you money that we will allow you to setup a mirror **FREE of charge**. Pick up the phone and dial 1-888-656-9266. It just might be the best investment you make this year.



```

    public boolean action (Event someEvent,
        Object arg) {
//Filter out the non-button...

```

```

    if (someEvent.target == DoSomething
        Button) {
        //Now we have a button press. Find
        //the color that was selected.

```

```

        String colorString =
        ColorChooser.getSelected
        Item();

```

```

        //Now we make a web page
        //out of it. And display it in
        //the browser

```

```

        try{

```

```

        getAppletContext().showDocument (MakeWeb
        Page(colorString));

```

```

        }
        catch (Exception e){
        System.out.println(
        "Oh! My! An exception! "
        + e.toString());
        };
        return true;

```

```

    }
    return false;
}

```

```

/** Here is the actionPerformed method we
would have needed under the Java 1.1 event
model**/

```

```

    public void actionPerformed
    ( ActionEvent someEvent ){

```

```

//The only events we care about are the
//button events.

```

```

    if (someEvent.getSource() ==
        DoSomethingButton)
    {

```

```

        //We have a button press. Now we need
        //to find the color that was selected.

```

```

        String colorString =
        ColorChooser.get
        SelectedItem();

```

```

        //Now we make a web page out of it.
        //And display it in the browser

```

```

        try{

```

```

        getAppletContext().showDocument
        (MakeWebPage(colorString));
        }

```

```

        catch (Exception e){
        System.out.println(
        "Oh! My! An exception!"
        + e.toString());

```

```

        };

```

```

    } //close if

```

```

    }

```

```

//close actionPerformed

```

```

    public URL MakeWebPage(String
    colorString) throws Exception {
        URL NewWebPage;

```

```

    // We need to start a file to put the html
    into.

```

```

    //We include a random element in the
    //filename, so that multiple launches under
    //one web server won't produce clashing
    //filenames.

```

```

        int i = (int)(1000 * Math.random());
        String FileName = "web" + i + ".html";

```

```

    //For each possible color name, pick some
    //bizarre background and text color.

```

```

        String BackgroundColor = Black;
        String TextColor = White;

```

```

        if (colorString == "Red") {
            BackgroundColor = Yellow;
            TextColor = Violet;
        }

```

```

        if (colorString == "Orange") {
            BackgroundColor = Green;
            TextColor = Red;
        }

```

```

        if (colorString == "Yellow") {
            BackgroundColor = Blue;
            TextColor = Orange;
        }

```

```

        if (colorString == "Green") {
            BackgroundColor = Violet;
            TextColor = Yellow;
        }

```

```

        if (colorString == "Blue") {
            BackgroundColor = Red;
            TextColor = Green;
        }
        if (colorString == "Violet") {
            BackgroundColor = Orange;
            TextColor = Blue;
        }

```

```

    //Now comes the code that I am still trying
    //to get to work.

```

```

        try {

```

```

        // Create a URL object representing the
        //place on the server where this code
        //is stored.

```

```

        URL dynURL =
        new URL(getCodeBase(),FileName);

```

```

        //Create a URLconnection object from it, so
        //that you can do fancier stuff with
        //the URL.

```

```

        URLConnection dynURLconn =

```

BSDI – THE INTERNET EXPERTS' CHOICE

CALL TODAY
ABOUT THE HOT NEW
BSDI INTERNET SERVER 3.0
AND BSDI GROUPGATE FOR
NOVELL INTRANETS!

"BSDI is the fastest and most stable Internet server for the Intel platform. Comparing NT with BSDI is essentially a no-brainer. NT is not totally reliable for many Internet services. The BSDI boxes never go down."

– Lisun Jaaa
Second Vice
President,
Technology
Chase
Manhattan
Bank

"Our environment includes SunOS, Soloris, NT, and BSDI systems. Netscape server

applications running an BSDI systems give us exceptional power and flexibility both for our Intronet hosting requirements and Internet service delivery platforms."

– Eric Bozich
Director of
Core Services
Development
INTERPRET
Networking
Services
U.S. WEST



BSDI – INTERNET AND WEB PERFORMANCE YOU CAN TRUST

Internet experts the world over rely on BSDI's proven system software for high-traffic Internet/Intranet and Web sites, Web-accelerated Novell-to-Internet gateways, and rock-solid platforms for advanced Internet applications and appliances.

NEW! BSDI 3.0 – EASY-TO-USE INTERNET PERFORMANCE

With BSDI Internet Server 3.0, a single PC server can deliver over 43 million Web hits per day and easily saturate a 45 million bps T3 line. BSDI 3.0's new graphical MaxIM Internet management tool makes it easy to install, configure, and maintain Internet services. Advanced service protection features help you protect your site from denial-of-service attacks. BSDI 3.0 includes commerce-ready Netscape FastTrack and Apache Web servers, Software.com's Post Office and BSD's sendmail E-mail servers, powerful servers for FTP, Netnews, NFS, and Telnet, the htmlexport development environment, Raima's Velocis database, and more!

NEW! BSDI GROUPGATE – WEB ACCELERATION GATEWAY

The new power-cached BSDI GroupGate combines a proven Novell-to-Internet gateway/firewall with high-performance Web acceleration for an instant Intranet performance boost to Internet-hungry workgroups throughout the enterprise. BSDI GroupGate speeds Novell-to-Web access by 10 to 150 times over uncached access speeds. A single GroupGate-powered PC gateway can connect up to 250 Novell users to the Internet.

For the BSDI solutions the Internet experts prefer, call BSDI today at 1-800-380-2737!

BSDI – IT'S HOT

Call: 1-800-380-2737

Fax: 1-719-598-4238

E-mail: info@bsd.com

Web: <http://www.bsd.com>



Powering the Networked Economy™

```

dynURL.openConnection();

//Tell the URLConnection that you want to
//do output.
dynURLconn.setDoOutput(true);

//Connect with the web server.

dynURLconn.connect();

//Dies here if the web server won't allow
//you to write.

//Create an OutputStream from the
//URLConnection

OutputStream WebPageOut =
dynURLconn.getOutputStream();

//Creat a PrintStream on top of the
//OutputStream, so you can get the println
//functionality.

PrintStream WebPagePrint =
new PrintStream( WebPageOut);

/** If you want to make a web page locally,
//on your java development system, you could
//Create a file object that will live in the
//java code directory for this applet.

File WebPageFile = new File (FileName);

```

```

//Then wrap the file in a FileOutputStream

new FileOutputStream( WebPageFile);

//then wrap the FileOutputStream in a
//PrintStream

PrintStream WebPagePrint = new
PrintStream( WebPageOut);
    **/

//Now, we make the web page

WebPagePrint.println( "<HTML>");
WebPagePrint.println( "<HEAD>");
WebPagePrint.println( "<TITLE>Gosh, a
dynamically generated web page!
</TITLE>");
WebPagePrint.println( "</HEAD>");
WebPagePrint.println( "<BODY TEXT=\"#"
+ TextColor + "\" BGCOLOR=\"#"
+ BackgroundColor + "\">" );
WebPagePrint.println( "<PALIGN=\
\"CENTER\"><FONTSIZE=\"7\"> "
+ colorString + "</FONT></P>");
WebPagePrint.println( "</BODY>");
WebPagePrint.println( "</HTML>");

//Now we close the OutputStream
WebPageOut.close();
}

//If something went wrong, tell what
//it was.

```

```

catch (Exception e) {
    System.out.println(
    " Exception:"
    + e.toString());
};

```

```

/* Now you need to pass a URL up to the
browser, for it to use. If you are really
using this on a web server or if you have a
web server running on your java machine, you
will want to pass up the absolute URL in
http form. If you are just hacking around on
a box without a web server, then you have to
pass a "file:" URL, so the browser can load
it without a web server being around.
*/

```

```

// For a real web server

```

```

//
NewWebPage = new URL(getCodeBase(
),FileName);

```

```

/* For just a browser
NewWebPage = new URL( "file",
WebPageFile.getAbsolutePath() );*/

```

```

return NewWebPage;
}

```

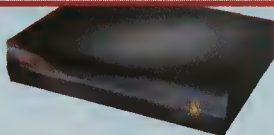
```

} //close Applet definition

```

◆◆◆

The ISP's Best Friends



Ascend Max 4048

Best Price

- Why pay more??? **We will beat any price!!!**

Best Support

- Solution driven sales and tech staff
- Easy leasing and other financing options available
- In Stock! Prompt, courteous service

Best Technology

- Two T1 / PRI lines. 48 High Speed 56k Modems
- Support for Analog, ISDN, Frame Relay
- Advanced Radius and Network Management
- Proven Performance - #1 ISP Market Share

800-397-3146

E-Mail Jim@Sound-Business.com

ISPs and Cable Companies

GROW YOUR BUSINESS AND INCREASE PROFITS!

60% of U.S. homes don't have a computer.

The Teknema™ Internet TV™ allows you to turn them into customers by bundling our set-top box with your service. Become a Teknema reseller.

Advantages to You:

- ▲ Increase your subscriber base
- ▲ Lower your support costs
- ▲ Internet TV users spend less time online
- ▲ Sign long-term service contracts
- ▲ No server-side software required
- ▲ Your Web site is the home page for the box
- ▲ ISP and content independent
- ▲ NO royalties to us
- ▲ Remote configuration and set-up

Key Features:

- ▲ HTML 3.2 compliant with Frames support
- ▲ TCP/IP, HTTP, PPP dialer, PAP/CHAP user authentication
- ▲ POP3, IMAP4, SMTP email
- ▲ 33.6 or 56Kbps modem
- ▲ Ethernet option for LANs & cable modems
- ▲ Flicker-free display
- ▲ SSL & public key encryption
- ▲ Smartcard reader
- ▲ Printing on HP printers
- ▲ Software upgradable over the Internet

Hundreds of ISPs are already working with us. Don't be left out of the game. Visit our website to learn more about our ISP program.

ORDER YOUR ISP EVALUATION KIT TODAY!

www.teknema.com

sales@teknema.com

1.650.833.7910

TEKNEMA™
INTERNET TV™





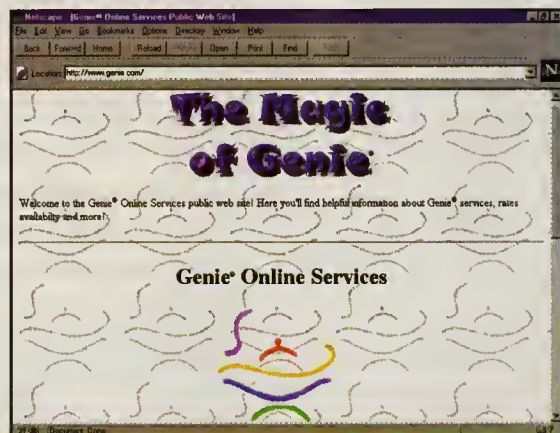
BIG BOARD BRIEFS by Wallace Wang

AMERICA ONLINE OFFERS E-MAIL ACCESS OVER THE WEB

America Online has announced AOL NetMail, a free service that allows users to access their AOL e-mail without having to use the AOL software. NetMail is targeted toward travelers and students who may need to get their e-mail while on the road, away from their home computer. Besides e-mail, AOL members can also use NetMail to send instant messages, read bulletin boards, and access AOL content—all without logging on to the service.

NetMail is just part of America Online's plan to dominate the Internet before someone like Microsoft can do it first. Since Microsoft continues to stumble with its Microsoft Network and other rivals like CompuServe have long since proven to be too incompetent to provide any competition, look for America Online's presence to increase on the Internet in the near future.

DOES ANYONE CARE ABOUT GENIE?



Even though CompuServe's latest press releases make it sound like it's the only online service with the bright idea to migrate its content to the World Wide Web, Prodigy did that a long time ago. Now Genie has finally seen the inevitable and migrated most of its forums to the World Wide Web as well.

Even though you won't see much advertising from Genie, Genie offers two payment plans: Genie Full Access accounts and Mail Only accounts. The Full Access account costs \$19.95 a month (or \$12.95 a month if you already have a TCP/IP connection) and gives you four megabytes of storage space for storing files and your user profile page.

If you just want to use Genie for e-mail, the Mail Only account costs \$9.95 a month (or \$7.95 a month if you already have a TCP/IP connection) and gives you just an e-mail account and four megabytes of storage space for e-mail.

While it's nice that Genie finally offers flat rates competitive with the rest of the industry, there's still little compelling reason to switch from your ISP to Genie. In case you want to see what Genie might have to offer, visit its web site at www.genie.com and see if Genie is worth trying.

AMERICA ONLINE NON-U.S. MEMBERSHIP TOPS ONE MILLION

Just to embarrass its former rivals in the online service market, America Online recently announced that its membership outside the United States has passed the one million mark (surpassing Prodigy's tiny 900,000+ members and nearly equaling CompuServe's dwindling 2.3 million total membership).

America Online is currently available overseas in the United Kingdom (300,000 members), Germany (400,000 members), France (100,000 members), Canada, Japan, Austria, Switzerland and Sweden. America Online plans to offer service in Australia shortly.

Total U.S. membership in AOL is over 10 million members. Even if you combine all the other online services together, they still can't match America Online's total membership, which tells you that despite its ongoing technical problems, America Online knows the importance of marketing which CompuServe, Prodigy, Delphi, and Genie apparently never bothered to learn.

AMERICA ONLINE BATTLING E-MAIL 'SPAM'

To prevent spam from clogging its service, America Online also filed lawsuits against three other e-mailers. One lawsuit, filed in Circuit Court in Fairfax County, Virginia, alleges Squeaky Clean Marketing and Cyber Services, both based in Dallas, Georgia, ignored repeated requests by AOL to stop sending unsolicited junk e-mail to AOL members, resulting in thousands of AOL member complaints.

Squeaky Clean Marketing and Cyber Services peddled everything from baldness cures to get-rich-quick schemes, AOL said. The companies even sell do-it-yourself spamming software to enable other "entrepreneurs" to bombard AOL members with unsolicited junk e-mail.

Wallace Wang is the author of *CompuServe For Dummies*, *Visual Basic For Dummies*, *More Visual Basic For Dummies*, *Microsoft Office 97 For Dummies*, and *More Microsoft Office 97 For Dummies*.

When not working with computers, he performs stand-up comedy and has appeared on A&E's *Evening at the Improv* TV comedy show. He can be reached via e-mail at 70334.3672 @compuserve.com, bothekat@aol.com, bo_the_cat@msn.com, or bothecat@prodigy.net

MEETINGPOINT TARGETS EVERY VIDEO CLIENT IN THE WORLD.*



MEETINGPOINT CONNECTS EVERYONE

REGARDLESS OF WHAT SOFTWARE OR SPEED THEY USE TO CONNECT TO THE INTERNET.

Running a MeetingPoint videoconference server means profiting from the services clients are demanding—Internet-based videoconferencing. Now you can quickly and easily provide lucrative video connections to millions of previously incompatible clients. Accounting and bandwidth optimization are built in, so administration is a snap. For information on this revolutionary new product, visit www.wvpine.com/mp/bw or call White Pine directly at 1-800-241-PINE (7463).

*any H.323 compatible client.

CU-SeeMe® is a registered trademark of Cornell Research Foundation, Inc. Intel® is a registered trademark of Intel Corporation. Microsoft® is a registered trademark of the Microsoft Corporation. Other product names may be the trademarks of their respective owners.



AOL sued Prime Data Worldnet Systems, Inc. for using deceptive means of transmission to defeat AOL's mail controls and send thousands of unsolicited e-mails to AOL members. In addition, Prime Data's mass mailing to AOL members advertised computer software products designed to enable other Internet users to transmit their own junk e-mail to AOL and its members.

ONLINE SHOPPING A HIT ON AMERICA ONLINE

The number of retail transactions recorded by America Online in the two weeks after Thanksgiving Day, 1997, doubled compared with the same two-week period the prior year. America Online attributed the overall increase in holiday sales to a surge of new online shoppers and increased online advertisements to target specific shoppers.

"Our members are showing they're ready and willing to capitalize on the convenience and time savings of buying anything and everything online, from postcards under a dollar to \$3,500 treadmills," AOL Networks President Bob Pittman said. Perhaps if CompuServe wants to regain its online market leadership, it could start advertising on America Online.

DELPHI MOVES FORUMS TO THE WEB

Delphi has moved more than 100 Delphi forums, including acclaimed message boards, chat rooms, live guests and articles to the World Wide Web for everyone to enjoy. If you don't currently have an Internet provider, Delphi will be happy to sign you up under its new flat-fee of \$6.95 per month. You can also pay in advance for \$34.97 per year, which is only \$2.90 per month.) To sign up for Delphi, call Delphi (617-441-4801) or visit the Delphi web site at www.delphi.com.

As a member of Delphi you'll get full access to all Delphi Web Forums, an e-mail account, up to 10 megabytes of web space for publishing your personal home page, and four hours per month of premium game play (a \$7.20 value) with popular web-based multiplayer games from Aries such as Air Warrior II, Casino Poker, Legends of Kesmai, BattleTech, and other word and card games. (Additional play will be charged at a low 3 cents per minute. Games from other developers are charged separately.)

Although Delphi doesn't have the advertising clout of America Online, it does offer an attractive monthly rate. So if you're not already on the Internet, you might want to consider Delphi. Since Delphi's membership has dwindled to practically nothing, you shouldn't get any busy signals (like America Online) since you just might be the only Delphi member in your area.

ORDER FOOD THROUGH AMERICA ONLINE

If you're an America Online member and suddenly get a craving for pizza or Chinese food, you won't have to leave your computer to eat. America Online recently entered into a four-year, \$20 million marketing pact with Cybermeals, an online take-out restaurant service.

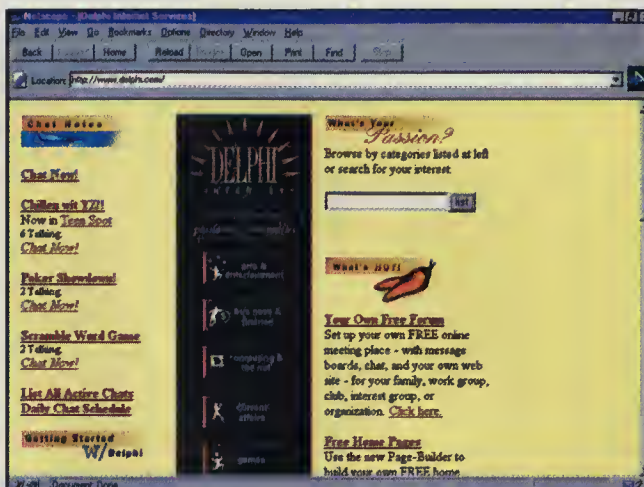
Under the agreement, Cybermeals will match customers logged on the AOL service or visiting the AOL.com web site with restaurants in their own neighborhoods that feature home delivery. The online restaurant system then places the order.

Cybermeals said it expected to have more than 25,000 restaurants in the network in time for its April launch as an AOL

service. AOL said it would receive \$20 million in payments from Cybermeals and participate in Cybermeals revenues based on meeting specified thresholds.

"Our online partnership with Cybermeals demonstrates once again that with the explosion of electronic commerce, AOL members can increasingly do the same things online as they do off line," AOL Networks Chief Executive Bob Pittman said.

BULK E-MAILERS VS. AMERICA ONLINE



Claiming that America Online is against small businesses, the National Organization of Internet Commerce (NOIC), a California-based group, has threatened to post the e-mail addresses of millions of AOL users on its web site, making them available for downloading by any business, group or individual seeking to make mass electronic mailing

NOIC president Joe Melle said his group is making the threat against AOL because it believes the online service is trying to put small companies on the Internet out of business. He told the *Los Angeles Times* that barring the use of affordable bulk e-mail on the network would prevent small business from gaining access to as many as half the regular users of the Internet.

America Online calls the plan "cyber-terrorism," and has retaliated by sending a letter to NOIC promising to "seek full legal redress, including compensatory and punitive damages," if the e-mail addresses are posted on the Web.

"We really view this as an act of threatened cyber-terrorism, and we don't intend to give in to it," Randall Boe, AOL associate general counsel said.

Damien Melle, an NOIC spokesman, said the names were obtained through AOL's member directory, but that lawyers for the group said publication of the e-mail addresses would not violate AOL's membership agreement because NOIC would be giving them away rather than selling them.

So who do you side with, America Online or bulk e-mailers? Since most America Online accounts are already getting flooded by spam, it's possible that if the NOIC carries out its threat, spam could potentially shut down America Online's already fragile computer services. ♦

 **THiN Line SiteStak™**
THE WEB-SERVER APPLIANCE

You get this THiN™ box.



You plug it in.
You publish in
just five minutes.

What could be simpler?

COME SEE US AT ISPCON BOOTH # 426

■ Processes up to 38,000,000 hits per day ■ Stores up to 160,000 web pages ■ Manages up to 2,000 web sites ■ Shipping now, starting at \$3,990.

Check us out at www.thiin.com

 Data General

Stop by our booth at Spring ISPCON

Toll free: 888-UR-THiN (888-878-4446) Key Code #BW 4

Copyright © Data General Corporation, 1997. THiN and SiteStak are trademarks of Data General Corporation.



Doug Mohny was employee #10 at DIGEX. He has learned, and forgotten, a lot about help desk support, competitive intelligence, sales and marketing, leased-line service ordering, telco service, and public relations. He makes no pretenses at understanding anything more about the technical side of IP other than being able to get a PPP account working.

His writings have been published in *LA View*, *Washington Technology* and the *Washington Post*. Doug receives e-mail at moo@clark.net.

STREAMING MEDIA by Doug Mohny

STREAMING TO GO—CONSUMER AND PRODUCER

A bunch of names in the Internet industry — including AT&T, IBM, Macromedia, and Lucent Technologies — have pitched in to create a company called *Audible*. The Audible system, announced in December, is built around a 3½-ounce, hand-held, all-digital audio player that connects to the Internet through a serial port on a docking station. Downloading your favorite audio program for later playback in the car, on the train or the treadmill is as simple as point and click, if you can stand to pay the freight. The player package currently retails for \$199 and packs two hours of audio programming into four megabytes of flash RAM. It includes a battery, docking station, leather carrying case, serial cable, power supply, headphones, and a cassette adapter (so you can shove it into a car tape deck). Preparing your own “custom” daily listening is done with free software so you can mix and match your listening pleasures.

Of course, there are a couple of catches. Currently, you can only download audio in the proprietary Audible format. The company is working on supporting RealAudio, but for now, you can only go through the Audible folks to download content. Big “D’OY!” there. It takes about 15 minutes in real time to download an hour of audio at 28.8 Kbps analog. That’s not shabby, but it also means that you’ll probably need to set your PC to download audio while you’re in the shower to fit the “average” scenario Audible has sketched out.

Content? Audible has loaded up heavy on talking book/talking head content, including big name publishers Random House Audio Books, Harper Audio, Penguin Audio Books, and Time Warner Audio Books. Throw in *The Economist*, MSNBC Desktop, *Car Talk*, *Marketplace*, CBS SportsLine, *Fresh Air*, and Garrison Keillor’s monologues from

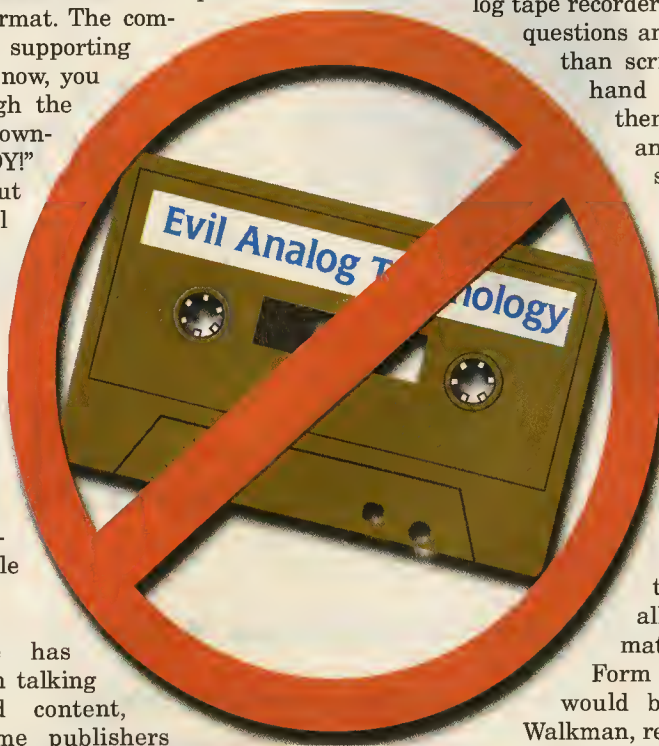
A Prairie Home Companion. However, downloading any of it will cost you money, around \$1.95 for an hour of audio. Multiply it out by the number of hours you’d listen to each week and you see how Audible might end up giving away players down the road. I haven’t seen any music on the web sites, and I suspect that’s due more to the hideous licensing agreement battles over “electronic” music.

Still not deterred? OK, go to the web site and order one (www.audible.com). They’ll also take phone calls, but you can’t go into the local geek electronic store to play with one before you order. Boo! Prediction: Once Audible supports RealAudio, the player will start showing up on store shelves next to the digital cameras.

WHAT THEY REALLY SHOULD HAVE BUILT

About the time of Internet World, I was looking for an Audible-like device, but I needed a few more features. I ended up buying a very simplistic \$30 analog tape recorder, so I could focus on asking questions and noting reactions, rather than scribbling out notes in long-hand and trying to translate them later. Sure, it was evil old analog technology, but it was simple and cheap. The closest, most attractive device, the Sony MiniDisc player/recorder, was around \$200. Not including extra MiniDiscs. DAT? Well, you can have DAT, but it’s still uses tape. Little cute 4mm tapes, but still tape.

It’s not asking a lot for Sony or someone else to turn around and go into an all-digital or near-digital format for audio player/recorder. Form factor and functionality would be the same as a Sony Walkman, replacing analog tape heads with a small hard drive or a couple of PC cards worth of flash memory. Certainly Audible demonstrated that two hours of sound can be crammed into four megabytes of flash RAM. I’d have the flash RAM removable. Sounds crazy?



There are already a number of dirt-cheap, dorky, watch battery-powered keychain devices that will hold a couple of minutes of audio.

Audio format was/is/will be RealNetworks or Active Streaming Format, with MPEG3 player support thrown in there for revolution-inciting purposes against the record industry. I'm sure there'll be some muttering about RealNetworks wanting a cut of everything moved everywhere, but Microsoft would be perfectly happy to give away the software if it meant getting a foothold in another market. Battery power would be designed around four AAA batteries for a life of at least 2-4 hours — real hours, mind you, not laptop hours. Output would be to a speaker or headphone jack.

Sony is already close with its MiniDisc player. As an audio-only product, you can cram a CD worth of music on a small, read-write disk about 1½ inches square. The MiniDisc has moving parts for the recording mechanism (evil) and removable media (good). It would need a data interface, so Sony would have to choose between serial, parallel, infrared (IR), and universal serial bus (USB). My preference would be parallel (everyone does parallel) and USB or an IR/USB combination. IR would be for those occasions where you didn't want to play with cables—just point and load to/from your laptop/desktop, while USB would allow you to quickly on - and off - load information.

Did I say "off-load?" Yes, I did. The tapeless digital recorder would have three additional features. A built-in microphone and external microphone input are musts. There would be a "bookmark" button, so you could write a highlight mark on the audio data either after a significant remark, or just as a divider between interview segments. Finally, it would come bundled with a some very simple software. One package would be a glorified copy program — just like the one I've got with my Kodak DC-120 digital camera — so you could move recorded segments to the desktop/laptop and dump CD tracks into memory when you're going to be stuck on the plane for a four-hour flight. The other package would be the cheap, cut-and-paste editing software so you could massage sound bytes.

The price tag on this all-digital/no-moving parts audio recorder would be less than \$500, preferably around \$200-250. It would make the ideal peripheral for a streaming media professional, and a

good buy for any reporter or web designer for that matter until such time when we get to the point at which "please speak louder to my laptop" is a reality. Sure, I *can* record audio directly into the 166 MHz Compaq I've got now, but if it's a choice between lugging around the \$2,700 device with the heavy battery and color screen or having a device I can wedge into a jacket pocket, I'll take the simple device. Laptop bigots are going to argue that I just need a smaller laptop, but I don't need to lug around all that functionality. I want to leave the functionality and corresponding weight in the hotel room or back at the office.

Who's going to build this gizmo? Kodak, if you're listening, I'd like to get you to build something the size of the DC-120 to record up to 30 minutes of audio as well as digital stills. Sony is another good candidate, especially since it has the MiniDisc player and a couple of digital cameras, including one that takes 3½" floppies.

HIGH BANDWIDTH AND HIGH MOBILITY?

One of the more difficult headaches regarding on-location cybercasts is the conflicting need for high-speed bandwidth (at least 384 Kbps and preferably T-1 speeds) deliverable to an encoding PC. However, high-speed leased lines are a pain in the neck to extend from a building demarc (a demarcation point—where the local phone company brings its copper and fiber into the building) to an event site. For open air events, such as concerts, stringing long lengths of

copper wire between the nearest demarc and a cybercast encoding site may be horrifically expensive and impractical. Not to mention the line quality problems associated with hauling that much copper around. At that point it *is* copper, regardless of how the phone company gets signal to the demarc.

Cybercasters have come up with some interesting strategies to get around the "last 100 yards" problem. Itv.net (www.itv.net) has used short-haul laser links to establish virtual links between locations in place where there is line of site between two points. One laser "modem" is installed within convenient wire distance of the demarc and sends/receives data from the second laser, typically sitting almost on top of the video encoding setup.

Lasers are nice if you have line of sight, but most folks aren't that lucky and a set of this gear can set you back \$10,000 without breaking a sweat. Not to mention problems in rain and its high power demands (120v AC required; no batteries here).

The next step is short-distance wireless LANs. I'm not talking about a \$10,000 dedicated directed antenna that allows you to get a T-1 worth of bandwidth up to seven miles away, but lower power products that are designed for in-building use. For example, we were very successful using a 2 GHz spread-spectrum product by BreezeCom (www.breezecom.com) that consisted of a pair of game-cartridge sized "bricks" with a pair of three-inch high antennas, later supple-

We're the helpdesk people.

Shadow Solutions.

24x7 support, one customer at a time.
888-543-7265 www.shadowsolutions.com
See us at ISPCON booth No. 567



mented by a third PC card transmitter. The bricks operated as a pass-through Ethernet. One brick plugged into a 10baseT outlet and its power supply plugged into a power strip. The other brick was taking to the appropriate location, powered up, and took a 10BaseT connection from the computer. The PC card acted as a wireless Ethernet card and did-

n't require external power. A pair of bricks with the basic antennas cost around \$1,500, while the PC card was under \$500 at the time we purchased it. Today's prices are probably much more friendly.

Operationally, the 2 GHz spread-spectrum gear acted as a transparent Ethernet moving at around 1-2Mbps per second at distances of around 80 to 100 meters indoors in heavy clutter. A computer room and lots of office cubes, as well as several walls, sat between the two devices and no attempt was made to optimize their positioning. We would have tested for longer distances but we ran out of room in the building.

Such wireless spread-spectrum equipment gives useful reach with minimal headaches for either in-building extensions or stadium extensions. Longer distances can be reached through the use of larger antennas and the proper positioning of equipment. While line of sight is not necessary for these products to work, it can help in marginal situations.

Two other products can also be used for lower-speed (i.e. non-video) connections. Digital Equipment Corporation makes a plug and play 900 MHz cordless modem

(www.networks.digital.com/dr/np g/deiap-mn.html). A base unit plugs into a standard telephone line while the roamer part is slapped onto the back of a laptop. The unit has impressive range; I've seen them operate between buildings without breaking a sweat.

In some cities, the Metrocom Ricochet system (www.ricochet.net) is available. Under most conditions, Ricochet will perform between 14.4 Kbps and 28.8 Kbps, but there are limitations on coverage and higher data rates. Ricochet depends on hundreds of smaller relay nodes bolted to light poles. If you're out of range of the network, you're out of luck.

More products should become available this year. Sprint PCS was making noises about 128 Kbps/ISDN speed devices and the LEO satellite crowd will have a couple of expensive options for data communications. However, LEO satellite communication will also offer unprecedented flexibility for those who can afford it. Instead of many large suitcases of satellite communications equipment, Internet broadcasters will be able to roam the world for stories — assuming they can find someone to recharge their batteries at the end of the day. ♦

The Next Generation, Internet-Saavy Primate is on the Loose!



The Internet Setup Monkey™ 2

The ISM 2 Admin Kit, for ISP's and network administrators, provides software installation and network configuration for the MacOS customer through a distributable Access Kit—saving you support costs! The new ISM 2 is more feature-packed and versatile than ever!

Visit www.rockstar.com for more info and put the Monkey to work building kits for you today!

Rockstar Studios
524A Union St. • San Francisco, CA
415.242.1984 • fax 415.263.3144



ISPs: LOOKING FOR A REMOTE ACCESS SERVER THAT IS FASTER, MORE RELIABLE, & LESS EXPENSIVE?

Look no further! Computone's IntelliServer **PowerRack** is exactly that! In comparison to Livingston's Portmaster, the PowerRack has a per port capacity of **921.6Kbps** (Portmaster -- 115.2Kbps), the PowerRack can support **16-64 PPP lines** (Portmaster -- 10-30), the PowerRack's average price per port is \$60 for 64 ports (Portmaster -- \$97 for 30 ports), and the PowerRack has a **5-year warranty** (Portmaster -- 1 year), FREE lifetime technical support and software upgrades, and a 30-Day evaluation option.

The PowerRack also has the standard feature list: dial-in/dial-out access, a powerful RISC CPU, Ethernet connectors, ISDN capability, PPP, SLIP, CSLIP, *bootp*, *rlogin*, *telnet*, reverse *telnet*, PAP/CHAP authentication, RADIUS II, RIP II, SNMP MIB II, subnet routing, IPCP DNS exts. for Windows 95, and IP filtering.

PowerRack user and Internet Service Provider Michael Behrens, of InterNet Kingston (mbehrens@kingston.net), commented, "The PowerRack is an attractive product, both in its ability to do the job well and to do the job... cost effectively. Port for port costs are significantly lower than the Livingston Portmaster. The product lives up to its name... performance under load is exceptional! The PowerRack also offers a significant feature for feature comparison against the available competition (i.e. Livingston Portmaster). And, technical support was extremely knowledgeable and responsive."



COMPUTONE

www.computone.com Corporation

1100 Northmeadow Pkwy, Roswell, GA 30076
(800) 241-3946 x280 or (770) 475-2725 x280

NEW POWERSURFER (921.6K ISDN MODEM!) - CALL FOR DETAILS!

BOARDWATCH MAGAZINE

Guide to Internet Access and the World Wide Web



- **ISP\$ Market Report** – how to determine the value of an Internet service provider. Plus tips for money management for ISPs.
- **ISP Tech Talk** – detailed how-to descriptions for operating an Internet service of any size.
- **@internet** – discussions of the hottest and most controversial technological and political issues facing Internet service providers and users.
- **Consummate Winsock Apps**—half a dozen of the best Winsock applications released each month
- **Cyberworld Monitor**—investigative reports of how government and corporations are shaping the future of the Internet
- **Education Link**—resource center and forum for K-12 and postsecondary educators

and much more!

U.S./Canada/Mexico ☐ 12 issues \$36. ☐ 24 issues \$59. Overseas ☐ 12 issues \$99 (U.S. funds)

NAME _____

COMPANY _____

TITLE _____

ADDRESS _____

CITY _____

STATE _____

ZIP _____

TELEPHONE _____

FAX _____

E-mail ADDRESS _____

CHARGE ☐ VISA ☐ MASTERCARD ☐ AMERICAN EXPRESS CARD # _____

EXP. DATE _____

For Faster Service, Call TOLL FREE 800-933-6038

Boardwatch Magazine 8500 W. Bowles Ave., Suite 210 Littleton, CO 80123



EURO NEWS

Richard Baguley

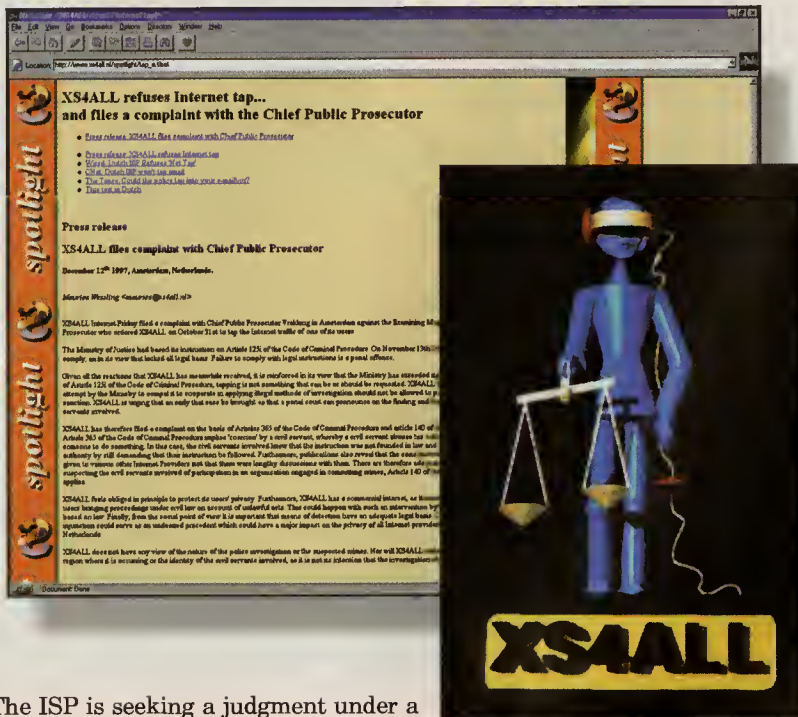
DEVELOPMENTS IN THE NETHERLANDS

In my last column, I talked about how the Dutch ISP XS4ALL (www.xs4all.nl) was refusing to comply with a police instruction to tap and record the Internet traffic of a user. The Dutch Ministry of Justice ordered them to log all the traffic of a user who was under government investigation, but the ISP refused. They claimed that the Ministry was overstepping its powers and misinterpreting the law in issuing the request. The ISP was expecting the police to take further action over this, but so far they haven't. Instead, the ISP decided to take the case to court themselves to clarify the legal situation.

realized that the instruction was beyond the remit of the law, and so asking XS4ALL to monitor the user's traffic was an abuse of power. Interestingly enough, when I asked a number of ISPs in the U.K. whether they would be willing to intercept the e-mail of a customer at the request of the police, all said they would. However, most rightly pointed out that this would require a court order, in a similar way to tapping a telephone line. None said that they would not comply with such a request, although some did say that they would seek a legal opinion before complying.

Richard Baguley is the technical editor of *Internet Magazine*, the UK's best selling Internet magazine (www.emap.com/internet). His writing has appeared in numerous places, such as *Mac Format*, *Wired News* and *WebMaster*. He is an ex-editor of *Amiga Shopper* and *Internet Today*.

He lives in a very trendy part of North London which is odd as he is one of the least trendy people you are likely to meet. He can be contacted at baggers@baggers.com



The ISP is seeking a judgment under a Dutch law that covers the abuse of powers and authority by a civil servant. XS4ALL is seeking a judgment as to whether the Ministry was abusing its powers by attempting to coerce them into an act that they knew was illegal. If XS4ALL wins the case, it will set a precedent that means the Ministry won't be able to issue this sort of instruction in future, as it would have been judged by the courts to be illegal. If they lose, they could still go to court to determine if the legal basis of the instruction was valid.

XS4ALL also claims that similar instructions have been issued to other ISPs in the Netherlands, and that these have been the subject of much discussion both within the Ministry and with the other ISPs. As such, XS4ALL think that the Ministry should have

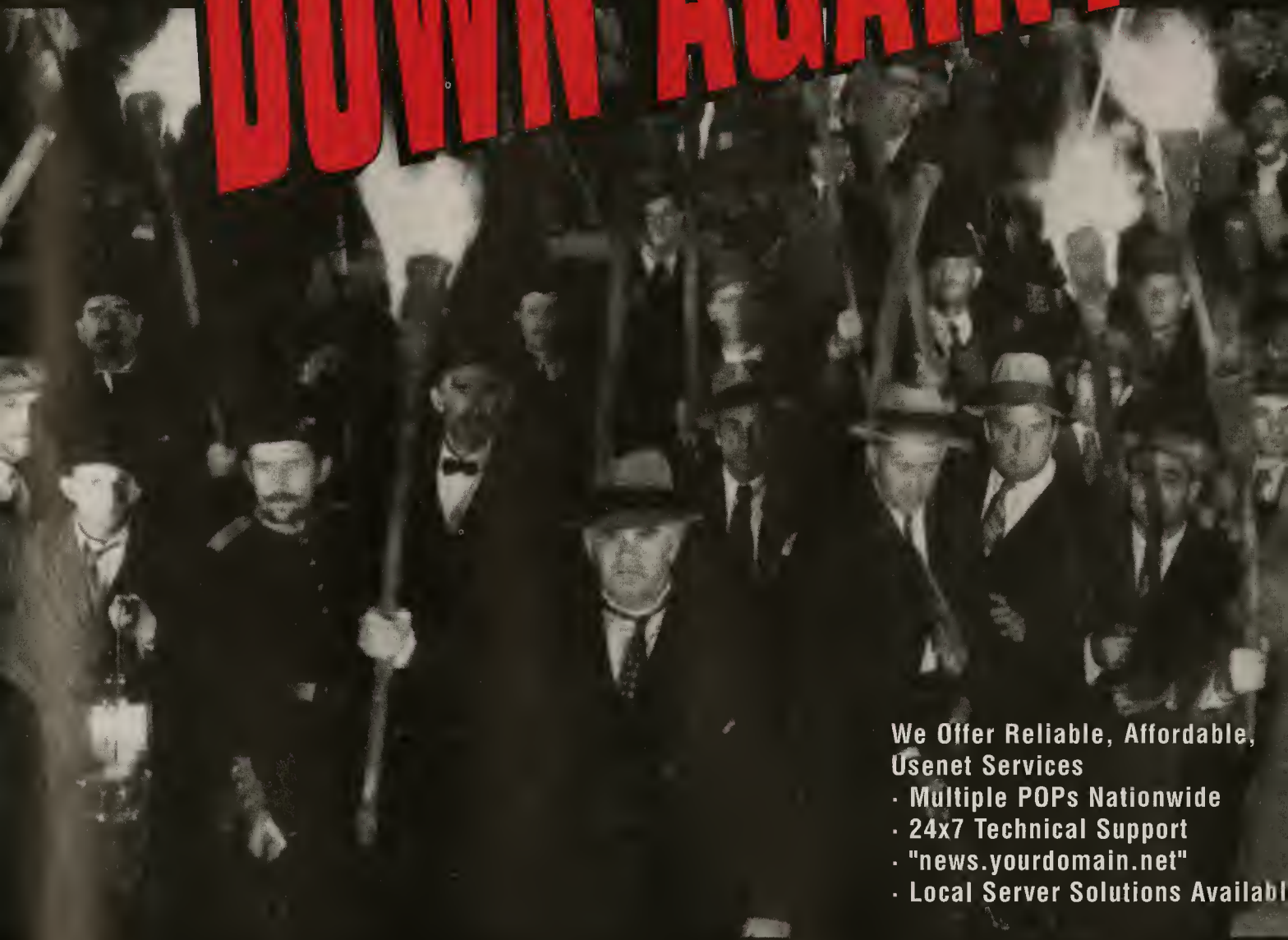
EURO POLICE KNOCKING ON YOUR VIRTUAL DOOR?

Meanwhile, Jack Straw, the U.K.'s home secretary (the U.K. government minister responsible for the police and legal system in the U.K.) is considering widening the existing powers of the police and other law enforcement agencies in the U.K. to intercept Internet traffic, and he is also encouraging other European countries to do the same. Although the proposals are still at a very early stage, they are likely to focus on the technical ability of police forces to intercept Internet traffic, and could include legislation to force ISPs to allow police monitoring of traffic.

The U.K. has just taken over the presidency of the EU for six months, and Straw commented at recent meeting of EU Ministers that "We are using 19th century procedures to pursue 21st century criminals..." This follows similar comments at a meeting of the G8 group of leading industrialized nations late last year, where Straw commented "We agreed that we have to have a closer dialogue with Internet service providers ... so that they are aware of the needs of law enforcers... There's also a need to recognize that we are all on the same side, because law enforcement agencies represent the lawful customers of Internet service providers." The meeting identified five areas that were of particular concern: child pornography, drug trafficking, money laundering, electronic fraud and espionage. They also agreed on a 10-point action plan, which included one rather worrying point: The ministers will "will direct their officials to...develop expedited pro-

NEWS SERVER

DOWN AGAIN?



We Offer Reliable, Affordable,
Usenet Services

- Multiple POPs Nationwide
- 24x7 Technical Support
- "news.yourdomain.net"
- Local Server Solutions Available

ISP News

www.ispnews.com

1-800-439-0640

**TOTAL USENET
ZERO DOWNTIME
GUARANTEED!**

COME SEE US AT ISPCON BOOTH # 221

Reliable Usenet Services for ISPs and business LANS.

cedures for obtaining traffic data from all communications carriers in the chain of a communication and to study ways to expedite the passing of this data internationally." Stripping away the diplomatic language, the ministers at the G8 meeting agreed to try to work out ways to make it easier to tap Internet traffic. As I mentioned last month, there are a number of technical issues about this that the people

in power don't seem too concerned about. As usual, it's probably the people at the bottom of the process (the ISPs) who will be left to overcome these problems.

Jack Straw also hopes to train more police officers to deal with the Internet and IT in general. At present, most police officers don't know much about dealing with computer-based crimes or the procedures required to retrieve data from computers to use as evidence. Although many police forces now have sections dedicated to computer crime (such as the Metropolitan Police's Computer Crime Unit in the U.K.), only one has a unit dedicated to the Internet. Germany has a small unit working on Internet-related crime, such as the distribution of child pornography. This rather controversial unit has been involved in a number of high profile cases, such as the attempted prosecution of CompuServe executives in Germany over the alleged distribution of both pornography and neo-Nazi material. The head of this unit also caused something of a stir at a conference on policing the Internet in London last year when he showed an audience some of the images his unit had obtained from the Internet, causing several members of the audience to walk out of the conference. Germany has also recently passed a number of laws that bring web sites within Germany under the same laws as books and magazines, which means that web site authors can be prosecuted if their sites contain pornography or neo-Nazi material.

The U.K. government is hoping to use its presidency to encourage the other members of the EU to create a more integrated police system that will include 24-hour contact points, so police forces in different countries can contact each other quickly to deal with cross-border crime, as well as allowing the courts to use video links to allow witnesses in one country to participate in trials in another country.

EU TO INVESTIGATE EUROPEAN TELECOM CHARGES

The EU is also investigating the cost of telecom service in Europe, claiming that the rates that the telcos charge no longer reflects the true cost of calling. The first step in this is for officials of the EU to request information from the companies involved, such as British Telecom (in the U.K.) and France and Deutsche Telecom (in, surprise, surprise, France and Germany). The investigation will focus on settlement rates — the charges that the companies make to each other

for handling international calls. Although these charges are made between the telcos, they are the biggest single factor in determining the cost of international calls, and the EU thinks that they no longer bear any relationship to the actual costs the telcos incur by carrying international calls.

Although the European Telecom market has recently been deregulated and has been the scene of increasing competition, these large companies (which are mostly either government owned or recently privatized) still hold the majority of the market, although several other companies have recently begun taking part of their market share. For instance, the U.K. mobile phone company Orange (www.orange.co.uk) recently ran a large advertising campaign about how their international call rates were 20 percent cheaper than BT's, leading to the rather bizarre situation of it being cheaper to make an international call from a mobile phone than from a land line. The large telcos have begun to realize this, and they have been recently cutting their prices, with Deutsche Telecom cutting some prices by up to 45 percent. A similar investigation in the U.S. in the middle of last year led to a large cut in the settlement rate for U.S. telcos, making it cheaper to call the United States.

The International Telecommunications Union (ITU, the body that makes international telecoms standards) has also announced that it is looking to lower the cost of international calls. It is proposing a new way to charge for international calls based on an accounting device called the subscriber drawing right (SDR). This is designed to make the process of translating the costs from one currency to another easier by effectively creating a new currency that telcos can use to charge each other for international calls. The ITU is proposing that the value of the SDR is standard between all countries, and that the cost of the call is shared equally between the originating and receiving telco. It's only a proposal at the moment, and it isn't likely to be voted on until later this year.

Although the EU investigation will focus on the cost of normal voice telephone calls, it does seem possible that it might also help to drive the cost of International bandwidth down, which would help to encourage ISPs to install their own links into Europe, which is becoming an increasingly important factor for ISPs. ♦

THE FUTURE OF EMAIL



mailspinner™

Mailspinner, for ISP's and network administrators, provides Web access to existing email accounts; Mailspinner is an email client that sits on a Web server. Your users now have the choice of accessing email via their desktop mail client or through a Web browser via Mailspinner. Mailspinner means your users can get their email from any device with a Web browser. Mailspinner is also the ideal platform for providing free email services.

VISIT MAILSPINNER @
www.mailspinner.com
OR CALL 703.471.0081

nascent SEE US AT ISPCON BOOTH 159
TECHNOLOGICAL SOLUTIONS

1608 Washington Plaza, Reston, VA 20190
www.nascent.com • tel: 703.471.0081 • fax: 703.471.0295

Makes Multiport Serial Comm Easy!



✓ Easy Installation: PCI PnP
 ✓ Easy Development: PCComm serial comm tool

MOXA Intellio & Smartio Multiport Boards

- Easy serial comm tool: PCComm (WinNT/95)
- PCI or ISA bus
- 2-1024 serial ports per system
- High speed up to 921.6K bps
- RS-232, RS-422 or RS-485
- Windows NT, 95, UNIX, OS/2 drivers

1-800-699-MOXA or www.moxa.com/mac



524 Weddell Drive, Suite 1
 Sunnyvale, CA 94089
 Phone: 408-734-2224
 Fax: 408-734-4442

Turn PC into Online-Access-Server.

How much
will someone
pay me
for my
subscribers?



Find out now ...
Subscribe to **I\$P**

☐ Yes, I'd like to know what my subscribers are worth right now ... sign me up for a year of **I\$P Report**, Editor (and Boardwatch columnist) Paul Stapleton's incisive monthly newsletter covering the critical financial aspects of running an ISP ... and do it at the special Boardwatch discount of \$149/year (regular price: \$195).

----- tear out fax to 303.271.9965 or e.mail "gina@mediabiz.com" today -----

Name: _____ Title: _____

Company: _____

Mailing Address: _____

City: _____ State: _____ ZIP: _____

Telephone: (____) _____ Facsimile: (____) _____

E.mail: _____ @ _____

The End of an Internet Era

Monopoly Moves to Competitive Registrations



NSI's WorldNIC Service

Few monopolies welcome the demise of total control. But Network Solutions, Inc. seems to be fine with it — well, at least ready for the inevitable.

On January 30, the Clinton administration released its proposal for moving the Internet addressing system from government control to a private, competitive market, recommending that a nonprofit corporation be established to govern the machine and database that assigns addresses and to make decisions about top-level domains.

That would end Network Solutions' monopoly on domain name assignments by September 30, which buoyed the company's opponents, but did not completely satisfy them. Although it has some concerns, a leading opponent of the current system, the Internet Council of Registrars (CORE) said the proposal "provides a step in the right direction to ending the U.S. stewardship over the domain name system and opening the Internet to self-governance and international competition."

But CORE is concerned that some of the proposed steps in the *Green Paper* released by the U.S. Department of Commerce might add new levels of U.S. government regulation for an undetermined amount of time. The organization says that could "perpetuate the existing monopoly and slow the transition to competition and self-governance." The organization also expressed concern that international stakeholders are being ignored.

By
Bill
McCarthy

The existing monopoly, Network Solutions (NSI), could see the end coming, however, and appears well prepared to compete in a new DNS world. After all, the publicly traded company that registers Internet domain names ending in .com, .net, .org and .edu under a contract with the National Science Foundation, has been involved in the fickle business of government contracting since its founding in 1979. In fact, NSI outlined its initial steps into the competitive registration business a couple of weeks before the *Green Paper's* release.

NSI LOOKS FOR HEAD START IN SMALL BUSINESS REGISTRATIONS

NSI announced January 14 the availability of RegistrationPlus at its WorldNIC Services web site (www.worldnic.com), which enables businesses and individuals to establish domain names for the Internet in a more straightforward manner than by going through the InterNIC web site (www.inter-nic.net). The system will also allow businesses to reserve names even without a connection to the Internet much less an IP address, which is not possible through the InterNIC.

At a press conference Gabe Battista, CEO of NSI said: "We certainly are confident that we will continue to be a key participant in domain name registration and an ongoing competitor in the market place ... Our investment in the products, services and technology, I guess, really affirms in our minds that that will be the case." NSI, Battista said, favors "a stable and secure way to transition this to a competitive environment, which we actively sup-

port and are actively willing to provide the resources to help that to happen. The reason we want to do this is because we believe that a competitive environment will bring a larger market and more opportunities to all the competitors including ourselves."

At the same time, Network Solutions (Nasdaq: NSOL) also announced strategic agreements with Dun & Bradstreet and *Inc. Online* that further emphasized its interest in quickly becoming involved in the competitive market place. NSI and Dun & Bradstreet arranged for businesses to register an Internet domain name and apply for a D-U-N-S Number from either company's web site. A D-U-N-S Number is a nine-digit identifier that D&B allocates to businesses. It identifies companies by location, industry, country and corporate affiliation, including branches, subsidiaries and divisions.

NSI's alliance with *Inc.*, a magazine about growing small businesses, is intended to emphasize its focus on registering small businesses on the Internet. Network Solutions will sponsor *Inc. Online's Guide to the Internet* site at www.inc.com/internet. In the *Guide to the Internet*, small-to-midsize companies find links to Internet resources. The two companies said there are "many other future collaborative efforts currently being discussed."

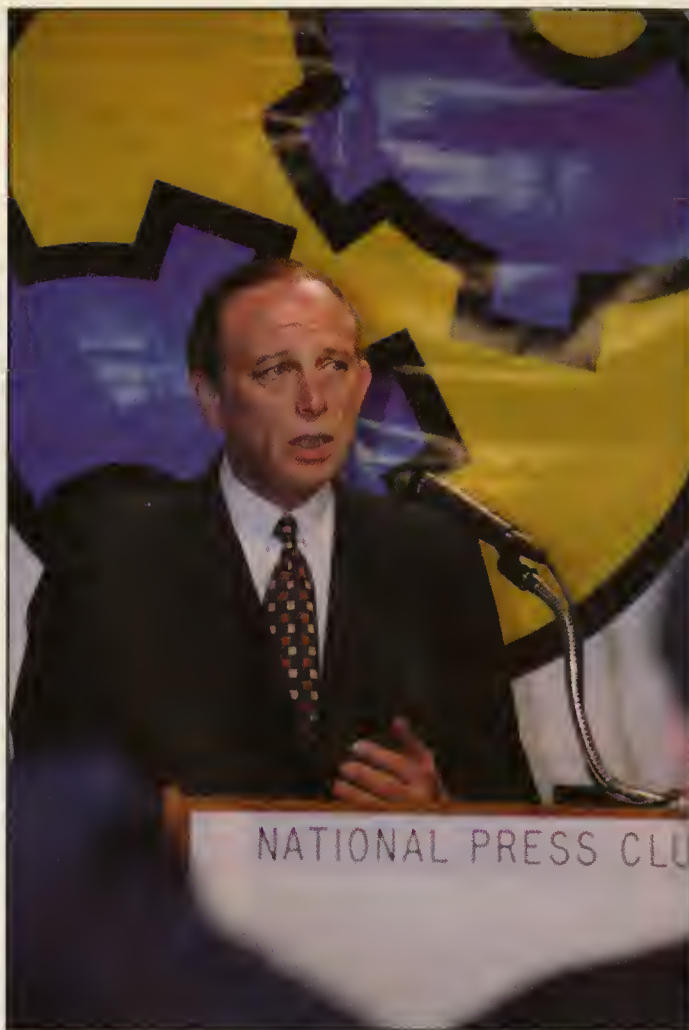
Battista said that in five years, the Internet will carry most business and personal transactions, yet Dun & Bradstreet estimates that 60 percent of small businesses are not using it. NSI wants to be there when those businesses realize they need to be on the Net.

RegistrationPlus checks the availability of domain names, usually within 20 seconds, and provides computer-generated alternatives for names if the first choice is no longer available, NSI says. In test groups, registrants typically took less than 90 seconds to complete the five-step process and newly registered names were on the Internet within 24 hours. The service accepts online payment from five credit cards. A password is issued upon registration that allows users to change registration account information.

As a registrar, WorldNIC Services has direct access to the central Internet registry (InterNIC) for .com, .org and .net. RegistrationPlus is available at www.worldnic.com or through a toll-free call to **1-888-NIC-WORLD** (642-9675). The cost of registering a name with WorldNIC Services is **\$10** for the first two years. The cost of reserving a name with WorldNIC Services is **\$49** for the first two years. These prices are in addition to the central registration fee of **\$100** for InterNIC.

The \$100 registration fee for two years, which was implemented in late 1995 by Network Solutions with government approval, helped kindle an already hot debate about the DNS system. That debate seemed to be bogged in Congressional-style gridlock. Which is why Clinton administration Internet Czar Ira Magaziner said it was time to release the government's proposal.

The Clinton plan recommends that a nonprofit, U.S.-based corporation be formed to govern the root server that assigns the numerical addresses behind domain names. The board would



NSI Chief Executive Officer Gabe Battista

have 15 members who would represent the interests of Internet Protocol number registries, domain name registries, domain name registrars, the technical community, and Internet users. The government would maintain oversight of the process for two years.

IANA REMAINS IN CHARGE, FOR A WHILE

The new corporation, which would be created in cooperation with the Internet Assigned Numbers Authority (IANA), would have authority to set policy for assigning IP numbers and direct the allocation of number blocks to regional number registries for the assignment of Internet addresses. It would supervise an authoritative root server system. It would oversee policy for determining if new gTLDs should be added to the root system, and base those decisions on objective criteria that is to be established in the organization's charter. The new nonprofit would also coordinate the development of other technical protocol parameters as needed to maintain universal connectivity on the Net.

The Clinton plan was developed in months of meetings between Internet stakeholders and Magaziner. The plan seemed to be at odds with the proposals of a private international body and influential opponent of the Network

**ISP
HOT NEWS**

METABANDWIDTH

expands your
bandwidth up to 50%
makes your business
more profitable

CURRENT BANDWIDTH

BONUS BANDWIDTH

TRPF,
the most
sophisticated
routing
technology
(patent pending)
included in
MetaBandwidth,
reduces your costs
30 to 50%.

MetaUP Technologies
www.metaup.com/download

Solutions monopoly — the Council of Registrars, which hoped to add seven new top-level domains by March. But CORE said the new government policy is a positive move.

In a statement, Alan Hanson, chairman of the executive committee of CORE, said that there are some important areas of agreement with the paper. The most important being that IANA would continue to manage the root zone, while the new nonprofit corporation is established. CORE supports continuing recognition of IANA's full authority for domain name system decisions. The organization also recommends transferring IANA to status as a new nonprofit U.S. corporation over the next three to six months, so that IANA maintains control over the root zone contents. IANA should have immediate authority to manage the short-term details of the transition as the government exits, CORE says. IANA should determine the schedule based on technical criteria and the qualifications of proposed registries or registrars, and should open domain name registration to new generic top-level domains immediately.

But Hanson also said: "Many CORE members throughout the world are concerned the proposed policy overlooks the international nature of the Internet. The *Green Paper* appears to carve out a U.S.-centric process designed to better serve the vested interests of Network Solutions rather than the broader interests of the world Internet community."

While the government proposes five new gTLDs, Hanson said: "CORE has been working more than 15 months through a global process to create a Shared Registry System to manage seven gTLDs. Jon Postel, head of IANA, and other technical experts have assured us, that adding new — up to a hundred TLDs is trivial. The system is sound. There should be no concerns about stability and no need to drag out the transition process," the organization says.

POSTEL'S REDIRECTION QUESTIONED

CORE says it is ready to demonstrate that adding up to seven new TLDs to the root is easy and would have no impact on stability, but will open competition and customer service. In fact Postel received some criticism for testing the transfer of

the system over the weekend after the *Green Paper's* release. IANA at the University of Southern California is run under a Defense Department contract, but Postel's authority to conduct such a test is in question. The organization rerouted the Internet's directory information from its normal destination at Network Solutions to the IANA.

The Associated Press reported February 4 that Postel redirected half the Internet's 12 directory-information servers to the IANA system without notifying anyone. The root servers find addresses on the Internet for users by using data from NSI's servers. Magaziner said the Clinton administration was confident Postel will not repeat his reconfiguration of the Internet without authorization. Postel told federal officials he was running a test to see how smoothly a transition could be made.

Postel's test "was not, in effect, an attempt to hijack the Net," Magaziner is quoted by the AP as saying at a conference of Internet executives. Magaziner, who described Postel as "a crucial player" in the future of the Internet, said Postel had promised not to repeat the test. But Magaziner also criticized its timing, coming so close to the release of the long-anticipated Internet plan, and because speculation was that IANA and CORE would not like some aspects of the plan. Apparently Postel does not face any of the problems that Eugene Kashpureff faces because of his July 4 weekend protest when he redirected traffic from the Network Solutions web site to his AlterNIC site. Users, who saw a protest message, could click on a link to NSI right away. Kashpureff, an advocate of alternative domains and the dismantling of the monopoly, protested what he believed was NSI's taking of .com as a brand name. Kashpureff publicly apologized and settled with NSI, but federal authorities have since made moves to press charges.

The battle over TLDs became heated late in 1995 when NSI began charging for registering domains, a service that had previously been free. Postel offered a plan to remove the monopoly and add up to 150 TLDs. He presented his ideas to the Internet Society (ISOC), leading to the formation of the International Ad Hoc Committee. The committee held a public debate in fall 1996 about bringing the Internet toward self-governance.

CORE and the Policy Oversight Committee (POC) evolved from the process and developed protocols, procedures, systems and software to administer competitive domain registration. CORE has been privately financed and developed with representatives from around the world, although there has been debate as to whose interests the organization represents.

CORE members were encouraged that the *Green Paper* had included many concepts from its generic Top Level Domain Memo of Understanding (gTLD-MoU). Key signatories to the Memo of Understanding for the POC and CORE include Digital Equipment Corporation, MCI, Bell Canada, the Internet Policy Oversight Committee, the Internet Society, the Internet Assigned Names Authority, the World Intellectual Property Organization, the European Telecommunications Standard Institute, France Telecom, the International Trademark Association and the Internet Society of Australia.

CORE currently lists 88 registrars in 23 countries, including 25 U.S. registrars with a presence in 103 American cities. The government's plan is still in draft form and open to public comment, after which the government will issue a formal policy.♦

One Stop Shopping for ISP's



SEACHANGE CORPORATION

Call for a Quote



ISPCON BOOTH # 564

1-800-661-7274

TAKE YOUR BUSINESS TO THE MAX!

Ascend MAX 4048 ISP Package

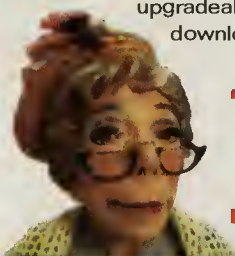
- 48 K56flex Digital Modems
- Special ISP pricing
- 2 T1/PRI ports
- Support for Analog, ISDN and Frame Relay
- Software upgradeable modems to future protocol standards
- Most advanced RADIUS and network management
- Easy Lease Terms Available

East: (905) 542-9484
West: (250) 475-1004
Central: (770) 956-7588
Web: www.seachange.com

We've got the x2™ Technology you need. Delivering 56 Kbps* over analog lines

Quick access, speedy file transfers, faster downloads. All lead to shorter connect times, more satisfied customers and lower expenses. And it's all possible with the new x2 Technology from U.S. Robotics. Your subscribers can now download information nearly twice as fast as with standard 28.8 modems.

All U.S. Robotics remote access products are easily upgradeable to x2 with a simple software download.



**"x2?
You want your x2?
I got your x2
right here..."**

• **Total Control™ Enterprise Network Hub** is a powerful and flexible chassis-based remote access server. It manages T1, x2, PRI and high density modem integration. It supports ISDN and analog on the same ports.

• **NETServer I-modem™** powerfully integrates x2, v.34, ISDN, management, security and accounting capabilities, as well as remote access functionality, in one compact unit.

• **Modem Pool I-modem™** integrates 8 or 16 U.S. Robotics Courier® V.Everything modems, x2 and ISDN capabilities in one compact unit.

Call now for special pricing.



U.S. Robotics®
The Intelligent Choice in Data Communications

1-888-844-8685 • FAX 407-676-0809 • SALES@SOLUNET.COM • WWW.SOLUNET.COM

SEE US AT ISPCON BOOTH # 242

SOLUNET
Nothing But NETWORKS

*Products are 56 Kbps-capable. However, current regulations limit download speeds to 53 Kbps.

**With the Compaq Microcom 4000,
remote access using your**

**You know, the stuff
you've already paid for.**



you can satisfy growing demand for existing infrastructure.

We know many enterprise network managers face pressure on conflicting fronts. Users are demanding remote access support – yesterday. On the other hand, their senior management is being anything but generous with IT budgets.

Aren't you glad, then, that you can offer them the Compaq Microcom 4000 access concentrator? The 4000 delivers a 96-port configuration in a small space at a low cost per port. Its T1/PRI ISDN capability with PPTP tunneling maximizes the investment your customers have made in their servers by rolling out inexpensive, reliable connectivity to remote access services regardless of location. Finally, it allows them to connect quickly and reliably to their existing communications servers, thereby protecting their technology investment.

To find out more, call us toll-free at 888-411-8646, Dept. 8281. Or even better, visit us at www.microcom.com/121/. The Compaq Microcom 4000. After all, if you can help a network manager's existing infrastructure do the job, doesn't that say a lot about how well you're doing yours? Microcom is a subsidiary of Compaq.

COMPAQ





Notes From The Underground by Wallace Wang

UNCONVENTIONAL SOFTWARE

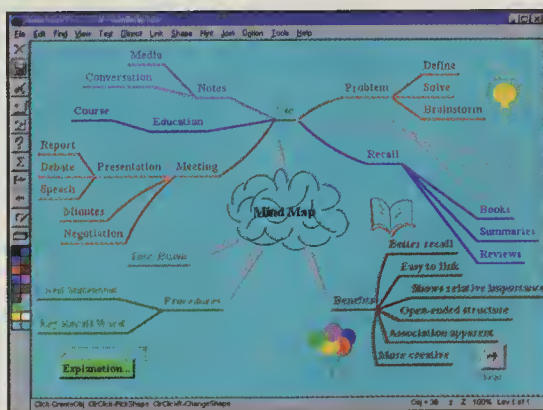
Wallace Wang is the author of *CompuServe For Dummies*, *Visual Basic For Dummies*, *More Visual Basic For Dummies*, *Microsoft Office 97 For Dummies*, and *More Microsoft Office 97 For Dummies*.

When not working with computers, he performs stand-up comedy and has appeared on A&E's *Evening at the Improv* TV comedy show. He can be reached via e-mail at 70334.3672 @compuserve.com, botheekat@aol.com, bo_the_cat@msn.com, Or botheecat@prodigy.net

Despite the advertising hype, computers increase productivity as often they impede it. Nearly every business can cite statistics showing how computers have improved their effectiveness, but nearly every worker can also recite numerous horror stories about wasted hours spend trying to make their computers do something as simple as print a mailing label.

Not surprisingly, software companies admit that people rarely use 90 percent of a program's features, yet each new update introduces additional features while being more complicated and requiring more resources (hard disk space and memory) to use. Given this endless treadmill of complexity in pursuit of simplicity, you might be pleased to know that not all software publishers rely on marketing hype rather than logic to sell their products to a gullible public.

Although big companies like Microsoft or name-brand products like WordPerfect or Netscape Navigator, grab all the headlines, many smaller companies have been quietly selling programs that not only work, but also increase your productivity in ways beyond mere speed or appearance. After all, it's more important that you solve the right task rather than solve the wrong task in half the time.



MAPPING YOUR THOUGHTS

The trouble with most software is that it simplifies and automates trivial tasks, but doesn't help you identify and solve difficult problems. Nearly everyone owns a word processor offering multiple

features, yet many people feel that they can't write any better than before.

Before rushing into your next project, take some time to think. Since word processors don't provide any features to help you examine, manipulate, and come up with ideas, try using a program that does offer these features, such as the Axon Idea Processor.

The Axon Idea Processor program is designed for creating mind maps. The idea behind a mind map is that people think in pictures rather than in words. So rather than create your ideas as words in an outliner, the Axon Idea Processor lets you create your ideas as objects (text and pictures) that you can manipulate on the screen by clicking and dragging.

Once you have enough ideas typed or drawn on the screen, you can draw links to identify relationships between your ideas. Since your computer screen can only show a limited amount of data, the Axon Idea Processor lets you create three-dimensional mind maps so you're only limited by the amount of ideas you can create.

While the idea of mind maps might seem strange at first, you'll quickly get used to jotting down the first thoughts that comes to mind. If you're curious how a program could help you think, visit the Axon Idea Processor web site (<http://web.singnet.com.sg/~axon2000>) and download a demo version.

After viewing the sample mind maps and creating a few of your own, you might be surprised how powerful a simple concept like mind maps can really be. Best of all, you can save your mind maps as text or HTML files so you can edit or post them as web pages. To learn more about mind maps, read the Mind Maps FAQ at <http://world.std.com/~emagic/mindmap.html>.

DATABASES MADE EASY

Most database programs are designed for the convenience of the computer. Using a database like Access or dBASE requires first defining the type of data you want to save, and then typing the data. Such a two-step process is necessary, but often annoying when the information you want to save doesn't fit any predictable pattern or length. For example, what if you want to save the name and address of one person, and directions to a second person's house in the same database? With most database programs, it can't be done.

DIGITAL **PAVEMENT**

Are your Web searches turning into **BUG** hunts?
Go *SITE-SEEING* with Digital Pavement.



**LINK IN
FOR
FREE!**

www.digitalpavement.com

Digital Pavement™ & © 1998, All Rights Reserved Artwork & Creation by Joshua Janes

Sound incredibly limiting? Of course, so if you want a database that lets you type in any information you want to save (without defining its structure first), and then quickly retrieve it, look at a database called Info Select (available at www.miclog.com).

Info Select is known as a free-form database, which means you don't have to define the type of data you want to save first—you just type it in. Info Select displays separate chunks of information in tiny windows that fill the computer screen. One window can contain someone's phone number, another window can contain three ideas you have for improving an office report, another window can contain a list of directions for finding a new restaurant, and another window can contain a name and address. By letting you store any type of information, Info Select more closely mimics the clutter of Post-It notes, scratch paper, and index cards that most people normally use to store various types of information.

You can browse through each window sequentially to view your stack of information, or you can search your database using query words. Searching a traditional database often means using Boolean logic, such as "Detroit" OR "Wilson," which finds all records containing either the words "Detroit" or "Wilson." Rather than force users to understand Boolean logic, Info Select makes searching easy. Just type the word or phrase you want to search for (much like using a search engine like Excite or Yahoo!), and Info Select immediately displays all the windows that contain the information you want.

Info Select is perfect for storing personal information that lacks structure (although it also has an option for storing structured information too). If you find databases (like Access) and personal information managers (like Lotus Organizer) too limiting, restrictive, or complicated to use, try Info Select. You might be pleased to find a program that you can actually learn to use in less than a minute.

HYPertext MADE EASY

Creating a web page should be easy and fun. Unfortunately, creating a web site that consists of multiple web pages can quickly become frustrating when you need to organize them. Suddenly you have to worry about updating links every time you modify a web page. Since computers are so good at doing trivial tasks, it just makes sense that your computer should take care of updating your web page links so you can focus on the content of your web pages instead.

That's the idea behind Trellix (www.trellix.com), the brainchild of Dan Bricklin, the man who gave us the world's first spreadsheet, VisiCalc. Trellix looks and acts like a word processor that can create HTML code for your web pages, but you can also use Trellix to create and distribute electronic documents as well.

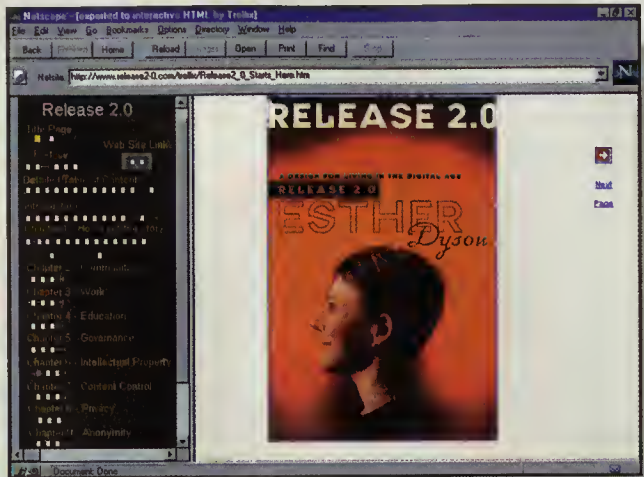
If you give copies of your Trellix documents away, you need to include the free Trellix runtime viewer so others can view (but not edit) your documents, much like Adobe Acrobat. Since Trellix documents mimic web pages, users familiar with the Internet will already know how to navigate around a Trellix document.

Unfortunately, navigating through multiple pages can be frustrating. To further aid navigation, Trellix can display a map that visually shows the relationship of each page to the

rest of the pages. By viewing the map, you can quickly jump to different pages.

The map has another purpose as well. Since different types of readers are likely to read your Trellix document or web pages, Trellix lets you create guided tours targeted for specific users where one tour could be geared for engineers, another tour for accountants, and a third tour for customers. Such tours let users focus on the pages most relevant to their interest while letting them skip over pages containing information that would probably bore the living daylights out of them.

To see how Trellix can create, display, and distribute web pages or electronic documents, visit www.release2-0.com and view a sample of Esther Dyson's book, *Release 2.0: A Design for Living in the Digital Age*.



Whether you're creating web pages or electronic documents, Trellix can not only help you make your pages, but also organize and link them together. In hindsight, Trellix's features are absurdly obvious, which means other programs like Word or Symantec's VisualPage are likely to offer Trellix-like features soon. But until they do, Trellix is the only program that can make linking and navigating among your pages simple, painless, and enjoyable.

Although Microsoft is intent on dominating the personal computer market, consider little-known alternatives to mainstream software. With the Axon Idea Processor, you can learn how to use your computer as a thinking tool. With Info Select, you can store and retrieve information at your convenience, not the computer's. And with Trellix, you can create and link web pages or electronic documents.

Just because today's software is popular doesn't mean it offers the best way to accomplish a given task. For more off-the-wall creativity software, visit Creativity Web at www.ozemail.com.au/~caveman/Creative. Always use the right tool for the right job, and in many cases, you may find that the right tool won't have the name of Microsoft, Lotus, or Corel plastered on the side of the box. ♦

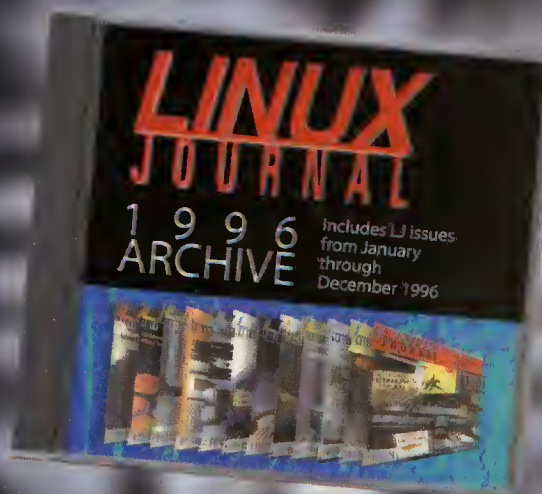
T H E L I N U X F I L E S

Have your LJ
back issues
been abducted?

FEATURES ON THE CD-ROM

- Graphics
- Software Development
- Getting new users started
- Linux distribution comparisons
- Shell Programming
- World Wide Web

Linux Journal introduces its 1996 Archive CD-ROM. The CD contains twelve priceless issues of Linux Journal, packed full of no-nonsense tutorials, time-saving articles, product reviews and industry news in a handy electronic format. Hurry, supplies are limited: order your 1996 LJ Archive CD-ROM today!



Only \$19.95!

Linux Journal's 1996 Archive CD-ROM is in HTML format and can be easily accessed with any WWW browser. We include a freely available WWW browser for the Linux O/S on the CD.

YES!

**Send me the Linux Journal
1996 Archive CD-ROM today!**

Linux Journal 1996 Archive CD-ROM **\$19.95**
WA residents add 8.6% sales tax \$ _____
Shipping (\$3 for each CD-ROM shipped in USA/Canada,
\$10 for Airmail to all other countries) \$ _____
Total \$ _____

Call toll free within US: 1-888-66-LINUX
Outside of US call: 1-206-782-7733 • Fax: 1-206-782-7191
Linux Journal, PO Box 55549 Seattle WA 98155-0549

Name _____

Address _____

City/State/Zip/Country _____

Phone _____

E-mail _____

☐ VISA

☐ MC

☐ AMEX

☐ Check enclosed

Credit Card number _____

Exp. date _____

Signature _____

Please allow 2-4 weeks for delivery in the USA/Canada; 4-6 weeks for all other countries, checks/money orders must be drawn on a U.S. bank in U.S. funds only

WebWatch Ads

Advertise your website.
Call 1-800-933-6038

Get Them Connected... FAST! ISP Connect



<http://ispconnect.com>

Luckman Interactive: Complete ISP solutions. The ISP Connect package includes: Web Register - client/server subscriber registration. Billing - customer billing and service management, Net Commander - custom branded, client access software suite. 1-800-711-2676



Welcome to HTLT

Here are the top 100 utilities information on our Information Systems, Toll Call Center and Traffic. Within software products, try our latest including the latest releases, 2000-2001 and our new software package. *Utility of the Year* and our focus on our consulting and other services, as well as our new focus on our help business. Call Center, Help Desk and Business Center deal with customer call. *Information Systems* and *Information Management* and *Information Management* manage their data and data services.

We've also included on our way to the right one-to-one solution with what you may need. Use the PC or Software's new one-to-one directory, just let our Hot Page-It for you, or you can get back, get these things ready, and let the business begin with:

- Product Info** our products including the Private Line Printer and Local Call Analyzer as well as the Turbo Tabler and *File-It* products
- Deals** try our deals to see how they work
- News** read up on what's happening in the industry, what new at HTLT and about our new products

<http://www.htlt.com>

HTLT- Provides tools that convert the voluminous telephone company tariffs into actual prices your customers will pay to access your network on a dedicated or dial-up bases. We interpret tariffs so you don't have to do it! CALL 1-800-CALL-HTLT

NEW or EXISTING ISPs

Expertly managed through a turnkey network, POI

National ISP Consultants

<http://www.national-isp.net>

National ISP Consultants: Give your users dial-up Internet access through 180 POPs. Turnkey 24/7 tech support, mail, news, & web hosting available. Start-ups welcome. 888-366-6477 or 203-596-2702

PROFIT FROM LIVE VIDEO

For your FREE Guide to Money Making Opportunities in Live Interactive Videoconferencing, visit our website!

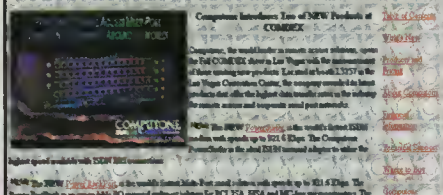
IVC Interactive Video Consultants

<http://www.ividconsult.com>

Interactive Video Consultants: Adult website and BBS operators: Profit from selling our live interactive videoconferencing service or start your own service. 888-801-VIDEO (8433) or 203-596-2490

COMPUTONE

Welcome to Computone Corporation
Provider of Remote Access Connectivity Solutions



<http://www.computone.com>

Computone Corporation: Computone provides the fastest (921.6K!) and lowest cost per port remote access server (IntelliServer *Power Rack*) to Internet Service Providers around the world. And now, the fastest ISDN modem (921.6K!) introducing the NEW *PowerSurfer*! Call for details (800) 241-3986 or (770) 475-2725

Welcome to The Esys Corporation



Are you at home or on the road, and need access to your Simeon mail?

<http://www.simeon.com>

The Esys Corporation: Deliver the benefits of a mail service that offers the following differentiating features: Folder Hierarchy, Searching, User Profiles, Sys-admin Tool Kit, Quota Management, Location Independence, and much more. Drive your bottom line with Simeon - value, performance, reputation.

SUPERNEWS DAILY



Internet Services

Supernews Daily is the leading Virtual Service Provider (VSP) for delivering USENET, EMAIL, and WEB HOSTING to individual, corporate, and ISP clients. For New Customers Only: We'll beat any advertised competitor price with superior quality, speed, and service. Call now for phenomenal USENET service! 1-800-795-2020.

<http://www.supernews.com>

Supernews is the leading Virtual Service Provider (VSP) for delivering USENET, EMAIL, and WEB HOSTING to individual, corporate, and ISP clients. For New Customers Only: We'll beat any advertised competitor price with superior quality, speed, and service. Call now for phenomenal USENET service! 1-800-795-2020.

ISP News

Usenet News Services for ISP's & Business Intranets

- Make your Usenet service a *PROFIT* center with *NewsFitch*!
- Check out *FastSync*, a secure FTP mailboxes with GUI and audit trails.

<http://www.ispnews.com>

ISPNews, Inc.: Reliable Usenet Newsgroup access for ISPs and business LANs only. Your users go to news.yourdomain.net and access our load balanced, redundant news machines via DS3s. 1-800-439-0640

CD-ROM DUPLICATION

For your FREE Guide to CD-ROM Production FOR ISPs visit our website!

<http://www.discpress.com/ispinfo>

DiscPress: ISPs, distribute Netscape or MSIE on CD-ROM for only \$0.75 per disc. Services tailored to the unique needs of ISPs. 888-311-disc (3472) or 203-759-0574

SECURITIES LAWYER

with extensive SEC experience wants to join the management team of a small or medium, pre-IPO, ISP for an aggressive financing and acquisition program of local ISPs across the country.

SECURITIES LAWYER: Meetings preferably scheduled during ISPCON '98 in Baltimore. Please call (202) 543-9575 to arrange a meeting.

Universal "User Sign-Up" CD ROM

the-rom.com
Includes Popular Shareware! 4 Color Mailer
Instant Nationwide Internet Sign-Up System
Instruction Booklet Custom Packaging
Order 100 ROMs at \$1.80 ea. NO SETUP FEE!

<http://www.the-rom.com>

The Rom: ISP's - would you like a single CD-ROM capable of configuring Macintosh, Windows 3.1 and Windows 95? Then look no further! The-Rom effortlessly configures your clients using our toll-free sign-up server. Call today for more information. Mention this ad for your special price. Now operates with HurlNet! Unbelievable pricing and options. 1-888-651-0766

SONOMA SYSTEMS

Home | About Us | Services | Products | Support | News | Contact Us

Sonoma Systems, a subsidiary of **Real (NASDAQ: RSTC)**, is focused on the service provider and ISP market with a mission to provide complete connectivity for multimedia broadband access with price, performance, and ease-of-use leadership.

What's New:
Real-time user management tools in **Realtime Networks**
Realtime Networks Streamline Products and Services Designed for Service Providers
Realtime Networks Streamline Products and Services Designed for Service Providers
Realtime Networks Streamline Products and Services Designed for Service Providers
Realtime Networks Streamline Products and Services Designed for Service Providers

<http://www.sonoma-systems.com>
Sonoma Systems is focused on the service-provider and ISP marketplace with a mission to provide complete connectivity for ATM multimedia broadband access with low price, high performance, and ease of installation and use leadership. Call, 1-310-827-8000

Ascend Remote Networking Solutions That Work™

<http://www.ascend.com/isp>
Ascend Communications: With an installed base of 2.2 million ports, Ascend provides more ISPs with dial-in access servers than any other vendor. Ascend's scalable products let ISPs cost-effectively grow their POPs and offer subscribers Ascend's award-winning ISDN/Frame Relay Internet Access Devices. Ascend's products deliver end-to-end solutions for integrated firewall security, telecommuting, Intranets and VPNs.

Welcome to Rockstar Studios

Internet Setup Monkey

<http://www.rockstar.com>
Rockstar Studios: From FREE PPP to the Internet Setup Monkey, Rockstar Studios provides ISPs and users with smart, easy to use Internet products that saves headaches and slashes support costs. Call (415) 242-1984 for more info.

SEA CHANGE CORPORATION

BOOK WHERE?

<http://www.seachange.com>
Sea Change Corporation is a distributor of high performance products for the Internet and Intranet. We will deliver to you the best solutions for wide-area networking, security, authentication, and commerce. Sea Change stocks: Livingston, Cisco, Ascend, US Robotics, BSDI, Adtran, Osicom and can guarantee next day delivery.

CYCLADES

Home Page

<http://www.cyclades.com>
Cyclades Corporation: Designs, manufactures and markets connectivity products: Multiport serial cards, routers, communication adapters and re-mote access servers. Cyclades supports UNIX and Linux, Window NT/Win95, BSD-derived markets, SCO, DOS, and Fossil for most of our products.

BSD BERKELEY SOFTWARE DESIGN, INC.
Powering the Networked Economy™

<http://www.bsdi.com>
Berkeley Software Design: The most complete Internet server software includes Netscape FastTrack Web server, Apache Web server, News Server, mail server, FTP Server and more. Over 2,500 ISPs worldwide and Fortune 500 companies rely on BSDI for top web and Internet/Intranet power and stability. No additional OS to buy. Installs in minutes and features GUI configuration manager.

Internet Billing Software For Unix & NT

ISPTrak is the Affordable Software
at only \$299 * US
Get a FREE Evaluation Copy Now

<http://www.cyberacs.com>
Action Computer Service: Inexpensive Internet Billing Software, Email Invoices, Charge For Actual Time Used, Process Credit Cards, Track Taxes, QuickBooks Import, FREE Trial. 818-575-3339. action@cyberacs.com

INTRODUCING A NEW SOLUTION TO INTERNET IDENTITY

DOMAIN BANK

OFFICIAL DOMAIN NAME REGISTRAR
.SHOP .WEB .INFO .FIRM .ARTS .REC .NOM

<http://www.domainbank.net>
Domain Bank: ATTN ISPs/Reseller! Domain Bank is now accepting applications for our ISP Partnership Program. Generate up to 50% commissions and annual residuals www.domainbank.net or 1 (888)583-3382.

Shadow Solutions

24 X 7 HELPDESK

<http://www.shadowolutions.com>
Shadow Solutions: By outsourcing your help desk, your calls become our calls. 24 by 7. Exclusively for ISPs. Find out how we can add to your bottom line. Call 1-888-543-7265

AGIS
APEX GLOBAL INTERNET SERVICES

<http://www.agis.net>
AGIS: Get AGIS and get connected! AGIS is a leading Internet backbone services provider specializing in dedicated high bandwidth connectivity to the Internet backbone for Internet service providers, content providers, and large corporations. Visit our web page for details on how your company can get connected to the AGIS high speed backbone!

DOMAIN COMMUNICATIONS

A Global Domain Name Registry

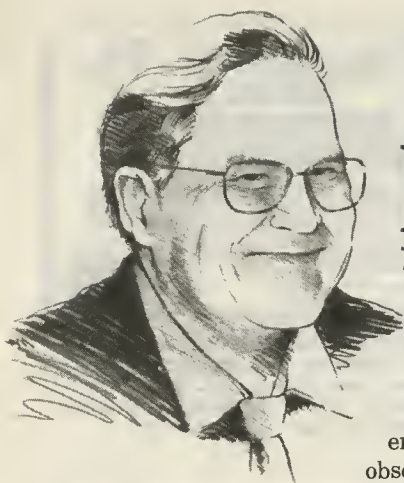
Member of CORE

<http://www.domcom.net>
Domain Communications: Register Now! The new global Top Level domains .firm, .web, .info, .shop, .art, .rec, .nom, are available. Get in early - check, money order of credit card.

Web eSoft

Last Update OCT 31

<http://www.esoft.com>
eSoft, Inc: We got our start 14 years ago with TBBS. Now the The Internet Protocol Adapter, or IPAD, is our primary product. The IPAD lets you build a full-function Internet presence without specialized expertise.



DVORAK ONLINE by John C. Dvorak

THE THIRD AGE OF COMPUTING

I've been working on a book regarding the various changes that take place in the world of computing and the empirical trends I have personally observed over the past 20 years combined with research data going into the 1940s. As far as I can tell these observations carry over to all technology arenas, but are based on the computer scene. One of the curiosities is the role of technological leadership and how it changes hands as the computing paradigm changes. Since there have been recent rumblings about Sun buying Netscape (which may already have happened by the time this gets into your hands), I thought I'd discuss the inevitability of Netscape being bought based on past cycles I've observed. One pattern emerges from the beginning. The company most responsible for a change in industry direction and the company most responsible for marking a new age will always be bought out by another company or even a competitor and then disappear. This happened with Mauchley-Eckardt which first commercialized the computer. They were first sucked up by Remington-Rand and then dissolved. Remington-Rand now makes shavers and the Univac name was even lost to history. More recently, the company that invented the desktop computer, Mits, with its Altair, sold the company to Pertec and was never heard from again. This exact same pattern will happen with Netscape if the model holds true. As I write this, some analyst is pooh-poohing the idea that Sun would buy Netscape. The fact is somebody is going to eventually buy Netscape and Sun looks like a decent candidate.

As an aside, there is always the "near-leader" such as Mosaic, which never made much money, came before the leader and essentially disappears without much fanfare. The Micral computer exhibited this characteristic before the Altair came along.

Another element of my thesis has it that old leadership from a previous age (the three ages are: Mainframe Computing — Hardware Age; Desktop Computing — Software Age; and Inter-Networked Computing — Connected Age) returns shortly after an "age shift" to resume a leadership role only to permanently fade during this era. An example was how IBM arrived in 1981 — about six years after the desktop era began (1975) — and essentially took over the market and became the dominant player. A similar pattern emerged when Microsoft came into the market. (Microsoft should be dominant six years after 1993 when the browser became widely available.) In a similar pattern, will Microsoft will dominate the entire browser scene to the point where the company can lord it over everyone just like it did during its

heyday, which, in fact, was the previous age — the Age of Software. Netscape should be complete history by the year 2000, if not before.

The interesting kicker to this is the decline in influence that takes place after the re-emergence of the leader. IBM owned the market from 1981-1987 when it made a huge blunder with the PS/2 machines and the OS/2 announcement. It has yet to recover as a leader. It now only remains as a huge company playing in the same sandbox with no clout. While many people prefer an emasculated IBM, they aren't so sure they want Microsoft telling them what to do. By my thesis, people shouldn't worry because the pattern would indicate that Microsoft will blunder around 2004 or six years after assuming control of the market, which may have already happened. This will be followed by a continuing decline in influence. The effect on sales remains to be seen. I invite readers to send me all parallel market trends they can come up with over the past 50 years. Many patterns emerge and are difficult to dispute as mere flukes. The most threatening to Microsoft is the potential for the stock to take a serious hit after 2004, which will change the way the company compensates employees. Of course this has to happen someday as the company cannot keep growing in sales to infinity.

In each of these ages, one company will emerge to take over a leadership role at about the same time the older leader wrests control of the business and during its six-year stint in which the old leader dominates. This should be taking place right now. In other words the new big leader who should appear dominant during the Microsoft downturn after 2004 is already on the scene. It's just difficult to see who it is. It may be a company such as Cisco or Compaq or a still more innocuous player as Microsoft seemed around 1983.

An interesting possibility arises here in trying to predict an emerging leader. It's possible that we are looking in the wrong direction. Both IBM and Microsoft, for example emerged within their ages (Hardware and Software, respectively) in an unpredictable way. IBM was not the best engineering company and didn't make the best mainframes. Microsoft was never the best software company. From the outset with its Microsoft BASIC, a competitive BASIC from Northstar was generally regarded as superior. Furthermore, one would have predicted better things for Digital Research. So it's possible that we cannot, under any circumstance, see the new leader. For all we know it may be an ISP! The possibility exists. I'll outline more of these parallels in the months ahead. ♦

In addition to his weekly syndicated radio call-in show, *Software/Hardtalk*, syndicated newspaper columns, magazine writing for *MacUser*, *PC Computing*, *DEC Professional*, *Information Technology*, and his featured "Inside Track" column in *PC Magazine*, Dvorak is the author of several best-selling books, including *Dvorak's Inside Track to DOS & PC Performance*, *Dvorak's Guide to PC Telecommunications*, and *Dvorak's Inside Track to the Mac*. John can be reached at dvorak@dvorak.org

DECODING MODERN MIXED DRINKS

One of the problems with our modern age is that the heyday of the mixed drink has passed. I've always wondered about why this is since a well-designed mixed drink can be delightful. I believe much of the decline is due to the invention of wacky mixed drinks that few bartenders can remember. So when you find an interesting drink someplace, you never can get it made properly anywhere else. An interesting web site (<http://psp.pair.com/cgi-bin/drinksearch.cgi>) has perhaps the best mixed drink database on the market and some simple searches reveal far too many variations on even the most classic of mixed drinks. The Sidecar, for example began life as a simple glass of brandy with triple sec and lemon juice. Lime juice versions and adaptations made with Cointreau and Cognac have resulted in confusion.

The worse trend is what I call "code" drinks. These have stemmed from the self-service personality of the American consumer. Nowadays we figure that we can invent better drinks than can a professional mixologist. To help out the wary bartender, a new category of coded drinks has appeared — epitomized by the series of screwdriver derivatives called "screws." If you haven't figured out the codes for these various drinks such as "Fuzzy Screw Up Against the Wall" or "Slow Comfortable Screw" or any number of variations, here are the

Main Page

Drink Search

Please enter your search then press Submit:

screwdriver Submit

Max Hits: Index:

In your search you can enter such terms as alcohol or mixer type (e.g. vodka) or drink name (e.g. martini). These terms can be separated by the search terms AND, OR and NOT and you can use brackets (e.g. vodka or rum not martini or greyhound). You can also search for drinks with the first letters of a word by using an asterisk (e.g. m*). The results are sorted by score, so the drink nearest the top will most closely match your query.

Max Hits is the maximum number of drinks that will be returned.

Index is where you can choose to search: All Cocktails, Shooters, Hot Drinks, Punches, or Non-Alcoholic Beverages

Copyright 1995 - 1997 PS Productions

Dvorak's Recipe Nook

code words used in combination to define the drink.

"Screw" refers to "screwdriver" which means all the drinks incorporate vodka and orange juice.

"Wall" refers to Harvey Wallbanger, which is Galliano-based. Any of these drinks which incorporate "Wall" into the name have Galliano in them.

"Fuzzy" refers to Peach Schnapps (as in a fuzzy navel)

"Up" usually refers to seven-up but using 7-up in any of these drinks has been lost to history for some unknown reason.

"Comfortable" adds Southern Comfort to the drink.

"Slow" adds sloe gin to the drink.

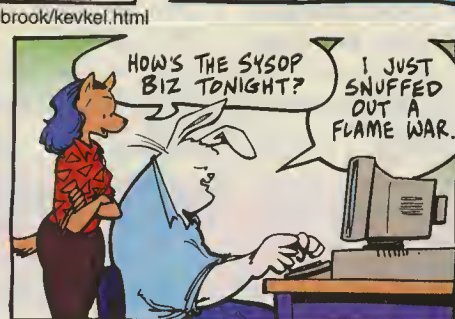
Any references to Cuban or Mexican or any other country known for a specific spirit should mean a substitution for Vodka. "Cuban" would substitute rum and "Mexican" would substitute tequila. Theoretically you should be able to order a "Slow Comfortable Cuban Screw Up Against the Wall" and get a concoction made with Rum, orange juice, sloe gin, Southern Comfort and Galliano although there is no published recipe for such a drink.

Now you probably know more than you ever wanted to know about modern drink colling. I think I'll stick to o gloss of good Cognoc. ♦

E mail: BTHOLBROOK@compuserve.com



See "Kevin & Kell" every weekday at www.reuben.org/holbrook/kevkel.html



BOARDWATCH ADVERTISERS

.Comfax	71	HTL Telemanagement	190	PSINet	69
3Com/US Robotics	2	HurlNet	129	Pulver.com	117, 143
Above Net	151	IBM	13	Resource Link	86
AccuWeather Inc	71	info@maximumspeed.com	41	Rockstar Studios Inc	174, 191
Action Computer Service	92, 191	Intellicom Inc	126	Rockwell	
Advanced Computer Communications	145	Interactive Video Consultants	190	International Corp	22
AGIS	65, 191	Intershop Communications	123	Sane Solutions	139
Alteon Networks	141	intraNET Software	97	SeaChange Corp	183, 191
APC	39, 73	IPswitch	47	Seattle Lab	51
Ascend		ISP Power	62	Server Technology	146
Communications Inc	191, 196	ISPNews	177	Shadow Solutions Inc	173, 191
Bay Networks ITBU	30	JUNO	46	Skycache	55
Berkeley Software		Lightspeed Software	49	Skyscape	118
Design Inc	165, 191	Linux Journal	189	Solunet Inc	183
Bigfoot Directories	61	Livingston Enterprises	98	Sonoma Systems	191
Boardwatch Subscription	175	LookSmart Ltd	93	Sound Business Systems	166
Boardwatch.com	157	Luckman Interactive	95, 190	Source Technology	75
Boardwatch ISP Directory	63	Media Business Corp	179	Spectrum Information Technology	89
CICAT	14	Mediacom Technologies	130	SuperNews	190
Cobalt Microserver	125	Metaimagen	182	Teknema Inc	167
Computone Corp	174, 190	MGL Systems	44	The Rom	190
Control Corp	135	Micro Technology Services Inc	118	THiN Line	171
Cyclades	155, 191	Microcom	184	Securities Lawyer	190
Daniels & Assoc	26	Mirror Image	45	Transend Corporation	17
DataXchange	91	Modern BBS/VSI	92	Tucows	163
Digital Broadcast Network	161	Moxa Tech USA Inc	71	TUT Systems	149
Digital Equipment Corp	83	Moxa Tech USA Inc.	178	VA Research	11
Digital Pavement	187	Nascent Technologies	178	Vircom	137
Discpress	190	National ISP Consultants	190	WebSoft Inc	40
Domain Bank	191	NCA	48	WebSurfer Inc	67
Domain Communications	191	Net Partners	131	Westcon 15	195
eSoft Inc	159, 191	Netopia Inc	53	WhitePine Software	169
Esys Corporation	190	Novell, Inc	9	XCom Technologies	147
Fine Point Technologies	121	ONE Inc	58	Xedia	8
GoodNet Corp	153	Orion Networks	119	Yokohama Telecom	194
Hewlett Packard	37	Osicom	127	Ziplink	64
		Priori Networks, Inc	57		

Βυψ Διρεχτ φρομ Ωηολεσαλερ *Order 1-800-965-6426 visit*

DIGIBOARD Multiport Authorized Reseller		
4 port Multi	PC4 / PC4Ew/Cable	\$268 / \$418
8 port Multi	PC8 / PC8Ew/Cable	\$388 / \$498
16port Multi	PC16 / PC16Ew/Cable	\$818 / \$828
32port Multi	PC32EM w/RS232Box	\$1498

Authorized Reseller for DigiBoard All Models Call for Best Prices

COMTrol Rocketport Authorized Reseller		
4 port Intelligent	1 CPU / w/Cables	\$209 / \$259
8 port Intelligent	1 CPU / w/Cables	\$269 / \$328
16 port Intelligent	2 CPU / w/ RS232Box	\$428 / \$658

Authorized Reseller for COMTrol Rocketport All Models Please Call

INTELLIGENT / NON-INTELLIGENT BOARDS
BOCA / GTEK / EQUINOX \$CALL

ALL MODEM BRANDS AVAILABLE:

33.6K Modem/Fax US Robotics Compatible / Voice = \$59.00 / \$65.00
AT&T, Motorola, Microcom, Multitech, Boca, Intel, US Robotics,
Practical Peripherals, Zoom, Zyxel, ISDN, Networks, Dialogic, etc..

Call for Best Prices on Current Products

Best COMPUTER SYSTEM monitor excluded

◆ Cyrix 6X86 P150+/P166+/P-200+	\$609/\$629/\$659
◆ AMD K5 P75 / P133 / P166	\$559/\$599/\$639
◆ AMD K6 P166 MMX / P200 MMX	\$829/\$929
◆ Intel Pentium® 166 / 200 / MMX 200	\$729/\$799/\$999

We Sell Full Line of Computer Parts CPU, SIMM Memory
Motherboard, HD,FD, VGA Card, IDE, I/O, Keyboard, Mouse, CD/Sound/Speakers

Charge to ☐ VISA ☐ MC ☐ DISC ☐ AMEX **ΧαλλφορΘηψΔισχουντ** **Tel: 714-693-1870**
YOKOHAMA Telecom Corp. 1251- 401 Manassero St. Anaheim, CA 92807 Fax:714-693-1871

K56flex? x2?

Adapt to it.



**5399 MODULE FOR
5000 MSX™**

REASON No. 1

**Supports K56flex and x2
implementations**

REASON No. 2

**Highest density solution
with 576 modems per chassis,
2,304 per 8' rack**

REASON No. 3

Lowest overall cost per port

REASON No. 4

**Software upgradable BayDSP™
modems to future services
such as voice and fax over IP**

Finding the right remote access platform to cost-effectively and reliably serve more customers with new services is the order of the day. With Bay Networks Adaptive Networking, the order isn't as tall as you might think.

Bay Networks 5399 Module for 5000 Multi-Service Access Switch (MSX) is unique in the industry. Our high density platform provides carrier class reliability and performance with software upgradability to K56flex, x2 and future voice and fax over IP...all at a low cost per port.

Our high-density digital modem technology will make you more competitive across the board. With enhanced services, reduced churn, new customers and additional revenue from existing customers. Ensure the future of your network and your customers' networks by selecting the remote access equipment with the performance and migration path unmatched in the industry.

Does this Adaptive Networking really work for ISPs? Visit our Web site at www.baynetworks.com/5399/bw or call us at 1-800-8-BAYNET ext. 340. And start adapting.



Bay Networks

www.baynetworks.com/5399/bw



The demand for value-added data networks
is going to change the way
you do business. So what's in it for you?

More customers, more business and more revenue opportunities. Because now you can build the networks that offer value-added services your customers are demanding. Which means faster transmission, more security and 100% availability to deliver everything from virtual private networks to managed extranets. The kind of networks Ascend has been providing to the leading telcos, PTTs and ISPs worldwide for their data communications needs. In fact, more than 70% of all Internet traffic now passes through Ascend's backbone equipment. For more information on how Ascend's carrier-class products and technologies can help you take advantage of these new opportunities call us at (800) 632-8347, ext. 0302. Or check out www.ascend.com. And prepare your bottom line for good things to come.



COME SEE US AT ISPCON BOOTH # 442



**GET YOUR FREE TUCOWS
TOP 100 CD-ROM NOW!**

Details on reverse!



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

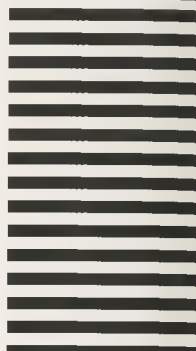
BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO.2884 PENNSAUKEN, NJ

POSTAGE WILL BE PAID BY ADDRESSEE

 **DISC MAKERS
& TUCOWS**

7905 N. CRESCENT BLVD.
PENNSAUKEN, NJ 08110-9810



ISPs: GET YOUR FREE TUCOWS TOP 100 CD-ROM!

Discover what it takes to give your users a world-class startup kit, bundled with award-winning Internet Software.

TUCOWS & Disc Makers invite you to **visit us at ISPCON '98** March 16-19 in Baltimore, MD. Bring this card to receive your **FREE sample copy** of the **TUCOWS Ultimate Starter Kit**, including the Top 100 TUCOWS applications. If you can't make it to the show, complete the form at right and mail it in to receive your copy, or call today: **1-888-656-9266**
(416) 233-7150
Fax: (416) 233-6970
<http://www.tucows.com>
advantage@tucows.com

☒ **YES** – I'm an ISP, and I want my **FREE TUCOWS Top 100 Internet Applications CD-ROM** to give me the **TUCOWS Advantage!**

NAME: _____

COMPANY NAME: _____

STREET: _____

CITY: _____ STATE: _____ ZIP: _____

COUNTRY: _____

PHONE: _____ FAX: _____

E-MAIL: _____

WEB URL: _____



 **DISC MAKERS**
CD-ROM MANUFACTURING MADE EASY